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COVER: Pharmacist Charles W. Whitebread, curator of the Division of Medicine and Public Health at the U. S. National Museum, is shown in the photograph admiring some of the 17th and 18th century vessels from the Old Apothecary Shop now being installed. See page 203 for further information on this pharmacist's unusual and interesting career.

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SEE YOU IN PITTSBURGH

COME August, pharmacists will be streaming into Pittsburgh. At the Hotel William Penn the 25th will mark the start of the first postwar convention of A. PH. A. and related organizations.

It will be the first meeting in two years. Convention time last year found everyone busy with the war. Transportation was impossible. Only one other time since 1852 had A. PH. A. missed its annual foregathering—the dark first year of the War Between the States. We have just emerged from another anxious period in the nation's history. And the profession faces new uncertainties and problems that require attention.

Fortunately the ASSOCIATION is better prepared than at any prior time to meet the challenge head on. During the past decade our full-time staff, working on behalf of professional pharmacy, has increased fourfold. Membership stands at an all-time high and is rising fast.

More important is the current program. Those who have followed the pages of THIS JOURNAL, or other independent pharmaceutical publications, hardly can be unaware of A. PH. A.'s active participation in whatever public health problems or projects touch our own profession; of courageous, competent leadership on behalf of pharmacists interested in pharmacy as a profession; of effective action wherever the professional interests of pharmacy or the health interests of the public are at stake.

That is why this year's convention—a time of decision—will be of especial significance. Significant to the individual pharmacist not only because he will want to sit in on the reports and discussion of what has happened and is happening in pharmacy, but also to have a voice in the ASSOCIATION's democratic processes for determining policy and plans for the future. The meeting will be especially fruitful for veterans who have been largely out of contact with civilian pharmacy for several years. They have already shown a gratifying interest in and support of A. PH. A. objectives, and will find a special welcome at Pittsburgh.

Why Pittsburgh? True enough that several other cities had extended invitations and were originally considered for the convention site. But a special committee of the Council found that the most adequate hotel and meeting facilities during the particular week of August 25–30 were those of Pittsburgh. Even here space will be at a premium and convention goers must make reservations *promptly*.

As customary, the American Association of Colleges of Pharmacy and National Association of Boards of Pharmacy will convene in conjunction with A. PH. A. It is expected that other related organizations will do likewise—such as the American College of Apothecaries, American Society of Hospital Pharmacists, Conference of Pharmaceutical Association Secretaries and Plant Science Seminar. However, the Council wisely told the Committee on Standard Program: Arrange the schedule so there will be no interference with the sessions of the ASSOCIATION.

The A. PH. A. convention can do with fewer of the distractions of a three-ring circus. Pharmacists should be able to give full attention to these important first postwar sessions of the parent organization; and then likewise attend the meetings covering their more specialized interests.

The convention will probably be one of the largest and one of the most important in ASSOCIATION history. You can both help and be helped by taking your seat in the meeting rooms of the Hotel William Penn in Pittsburgh. See you in August.

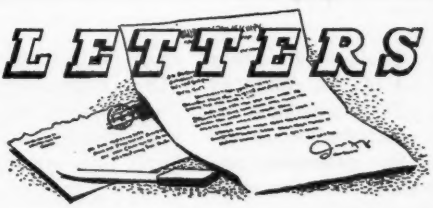
MARK YOUR CALENDAR
AUGUST 25–30

A PHARMACIST IN THE W.A.C.

Sirs:

During our recent correspondence you suggested that my experiences as a pharmacist in the W.A.C. might be of interest to readers of the JOURNAL. My service was rather long—three years—but the story is brief.

I spent thirty months at Fort Devens, Massachusetts, as pharmacist at the Post Medical Center. When two of us arrived, there were seven male soldiers, three of whom were registered pharmacists, the others to be trained as helpers. It wasn't long before the men were shipped out and we two W.A.C.'s had it all to ourselves.



At that time it was a Station Hospital, but later became the Post Dispensary when Lovell General Hospital was enlarged. Then we not only had the Dispensary with all of the Out-Patient Clinics to take care of, but also had to do the manufacturing for all the dispensaries on the Post. The two of us did all that without any additional help.

But, like a majority of the registered pharmacists in the Army, we did not get any recognition. . . . I arrived at Fort Devens with a T/5 grade and was discharged with the same rating.

Those in charge do not seem to realize how important a pharmacist is or how many lives depend on medicines being properly prepared. I think we pharmacists should join together and demand a commission upon entering the Service. Nurses received commissions and a pharmacist is just as important. . . .

Despite this lack of recognition, I do feel that I did my share and can return to civilian life and continue to try to be of help to fellow citizens. I am now employed at the City Drug Co. where I am the only registered pharmacist in town. I am sure that I am doing a greatly needed job.

Abbeville, Ga. VIRGINIA B. SEIGLER

COMMENTS FROM NAVY PHARMACISTS

Sirs:

Having read various articles published in recent numbers of the JOURNAL, I would like to comment on several issues which have arisen.

There has been much said about increasing the recognition of the pharmacist. How can this be accomplished without giving the pharmacist something more than a B.S. degree? B.S. degrees are given in every college to students who have completed science courses—the pharmacist has nothing more than a degree which may be gained by any college graduate. . . .

There have been several articles in different states saying that a veteran who has had a certain length of service and was previously enrolled in a pharmacy college should take the state board examination without further schooling. This is not only unfair to those who have completed their college education, but tends to lower the standard of pharmacy which to the present time has made some progress. The government is helping the veteran financially. Any veteran, then, who wants to enter the profession should be willing to go to school for his own interest as well as that of pharmacy and the public.

There has been a continual complaint about the shortage of pharmacists. If there were fewer "druggists" and more genuine pharmacists, pharmacy could have more recognition. The public has to drive to their physician; why not drive to have their prescriptions filled? . . .

In reference to the Pharmacy Corps in the Army: When I entered service most people with whom I talked had never even heard of the Pharmacy Corps. If the act was passed by Congress it should have been put into effect. In the Navy Hospital Corps, there has been much publicity about the outstanding work of the pharmacist's mates. This is not a direct credit to pharmacy. Most of the work was not accomplished by men who were registered pharmacists.

There are hardly enough registered men to man the pharmacies. Several pharmacists I know have been declared essential and held in service. If they are essential and in view of the service they are able to render in military hospitals, it is hard to understand why they have not been given more recognition. . . .

WILLIAM F. FITZPATRICK, PhM 2/c
ROBERT E. VANDERPOEL, PhM 2/c
VINCENT J. LINDENSCHMIDT, PhM 3/c

THE JOURNAL ON LUZON

Sirs:

After having received the JOURNAL for the past year while being in the Army, and enjoying its contents from cover to cover, I desire a renewal for the coming year.

The pages of the JOURNAL given to NNR products are fine. Keeps one abreast of the latest accepted by A. M. A. . . .

I am in charge of the pharmacy here at our hospital and come in contact with many medical officers. Incidentally, my *Pharmaceutical Recipe Book* is my password for assisting in formulae making.

Let's keep up the drive for higher standards and more professional and ethical trends.

Batangas, Luzon SGT. DESMOND R. BROWN
Philippine Islands

STRAIGHT FROM HEADQUARTERS

by ROBERT P. FISCHELIS, Secretary
AMERICAN PHARMACEUTICAL ASSOCIATION

WARNINGS ON PRESCRIPTIONS

IT IS not the policy of the AMERICAN PHARMACEUTICAL ASSOCIATION to alarm the profession unnecessarily upon any matter. However, there are times when matters affecting the future of the profession must be called attention to with some force.

When the Federal Food, Drug and Cosmetic Act was passed in 1938 it became apparent that a new type of protection for the public would become available. This protection is concentrated in labeling of drugs and medicines. In line with established custom and the accepted professional relationship between physicians, pharmacists and patients, the Food, Drug and Cosmetic Act exempts prescription labeling from the general labeling provisions, with the following exceptions:

Section 503 provides that a drug dispensed on a written prescription—signed by a physician, dentist or veterinarian—shall be exempt from the requirement that the label on products offered for self-medication reveal the ingredients and the names of certain dangerous drugs.

This prescription exemption is permitted on the basis that the prescriber is licensed to administer such drugs and that the name and place of business of the dispenser, the serial number and date of the prescription, and the name of the prescriber shall appear on the label. It is further provided that the inclusion on the label of certain warnings shall not apply if the prescription cannot lawfully be renewed or the prescriber specifically directs that it shall not be renewed.

The Food and Drug Administration has, from time to time, issued interpretations of the various provisions of the Act in the form of informal opinions known as "FD&C Act Trade Correspondence." For purposes of identification this correspondence is usually referred to as "TC," with a serial number. Most of the interpretations to date have been on the labeling of products for sale directly to consumers, presumably for self-medication. However, on February 14, 1946, there was issued TC 6-A headed, "Drugs dispensed upon prescriptions not exempt from warnings requirement." This statement was evidently intended to refer principally to the highly toxic new drug Thiouracil.

TC 6-A reads as follows:

> "With reference to the warning statement which you state you find upon packages of Thiouracil
>
> *'Warning—This drug may impair resistance to infection. The physician should be consulted at the first sign of sore throat, fever, or any illness during treatment with Thiouracil,'*
>
> it is our opinion obliteration, destruction, or removal of this warning from the labeling when the article is received in interstate commerce and dispensed pursuant to a prescription would constitute a violation of the Federal Food, Drug and Cosmetic Act.
>
> "Section 503 of the law provides exemption from certain of its requirements, including the listing of the name of the drug or the names of its active ingredients and the quantity of contents of the package. No provision is made for any exemption from the requirement of the law with reference to the appearance in the labeling of such adequate warnings against use in those pathological conditions or by children where its use may be dangerous to health, or against unsafe dosage or methods or duration of administration in such manner and form as are necessary for the protection of users.
>
> "The article as you receive it from the manufacturer bears such warnings. The law specifically prohibits the alteration, mutilation, destruction, obliteration or removal of the whole or any part of the labeling of a drug if such act is done while the article is held for sale after shipment in interstate commerce and results in the article being misbranded.
>
> "If you transfer part or all of the contents of the manufacturer's package to another container we think you should label the new container with the warning which appears upon the manufacturer's package."

Immediately upon the promulgation of this statement a number of bulletins were issued by pharmaceutical association secretaries and publications urging pharmacists to label prescriptions

for thiouracil with the above warning notice and also directing or implying that all drugs now requiring warning notices on their labels, in accordance with the interpretation of the Food, Drug and Cosmetic Act, would have to have such warnings transferred to the labels of prescriptions if such drugs are prescribed.

Breaks Rx Tradition

Obviously, such a blanket procedure on the part of pharmacists would call forth considerable resentment on the part of the medical profession, which is accustomed to having prescription labels read as the physician directs. Furthermore, the pharmacists' prescriptions, bearing on their labels a notice such as "Warning—May be habit forming" or any of the other many warning notices which have been devised for all kinds of drugs from laxatives to heart stimulants, would greatly alarm patients and might conceivably have an adverse effect upon their health.

We do not believe that the Food and Drug Administration intended any such thing to occur and it is our feeling that until further and specific notice is given with respect to each individual drug concerned, pharmacists should not deviate from the established procedure of labeling a prescription just exactly as the doctor orders it to be labeled.

Of course, any warning which the physician has written on the prescription as a part of the directions to the patient must appear upon the label of the prescription. This is accepted usage and we believe that it has been ingrained in pharmacists that they must meticulously follow the directions of the prescriber.

We are not recommending that the "informal opinion" of the Food and Drug Administration, set forth in TC 6-A, be ignored. It should receive the most careful and earnest consideration of both physicians and pharmacists. However, in our judgment, it is the physicians' prerogative to determine whether the warning shall or shall not appear upon the label.

We urge every phamacist receiving a prescription for thiouracil, in the directions for which the physician has not incorporated the warning suggested by the Food and Drug Administration, to contact the physician immediately and inform him that the Food and Drug Administration believes this warning to be necessary on the label. But the physician should make the decision as to what shall appear on the label. We further urge pharmacists to make a note of the date and time of contact with the doctor and a record of his instructions in writing.

A. Ph. A. Confers With FDA

As for the incorporation of warnings upon the labels of prescriptions for drugs other than thiouracil, we suggest that no action be taken at this time. This matter is the subject of conferences between the Food and Drug Administration and this office, and further clarifying statements will doubtless be issued in due course.

We want it clearly understood that we are not, in any way, opposing the Food and Drug Administration in its regulatory activities, but we believe that this matter is so fundamental to the future of the practice of pharmacy and the professional relations between physicians, pharmacists and patients that it must be clarified.

A. PH. A. PRESIDENT WILL ADDRESS WESTERN SESSIONS

Dr. George A. Moulton, president of the AMERICAN PHARMACEUTICAL ASSOCIATION and retail pharmacist of Peterborough, N. H., will speak at eight Western state pharmaceutical association meetings during May and June.

Dr. Moulton is executive secretary of his own state association and is a member of the State Commission of Pharmacy. In the course of years he has held many other offices in the profession.

As the representative of the A. PH. A. he has been invited to address the following state association conventions during his western tour:

Minnesota—St. Paul, May 6–8
Utah—Salt Lake City, June 1–2
Wyoming—Casper, June 4–5
Colorado—Estes Park, June 8–9
Montana—Missoula, June 12–13
California—San Francisco, June 16–18
Oregon—Portland, June 23–24

Dr. Moulton may be able to extend his trip to attend the Washington State Pharmaceutical Association meeting, now scheduled to be held early in July at Spokane.

"Teacher of Pharmacy"

THE UNSAVORY STORY OF AN ATTEMPT TO PROFIT FROM LOW PROFESSIONAL STANDARDS AND MAIL-ORDER "EDUCATION" IN THE FIELD OF PHARMACY

CERTAIN newspapers and the mails are carrying the message of a "comprehensive correspondence course" to unwary drug clerks and trusting youth throughout the country. Communications—and cash—are addressed to an anonymous "Teacher of Pharmacy" in Springfield, Massachusetts.

Because the "Teacher's" activities here disclosed have been a blot on the profession for too long, THIS JOURNAL is recording facts and information gathered from various sources* so that prospective "students" may be fully informed and guarded against the pitfalls of lost time and money which can result from a too literal acceptance of the "Teacher's" promises.

IRVING ISADORE JACOBS

Pharmacists have been asking: Who is this nebulous and elusive "Teacher":

His name is Irving Isadore Jacobs. As a young man he attended the New Jersey College of Pharmacy, where he obtained his Ph.G., and in 1915 registered in New Jersey. His subsequent career has been devoted mainly to promoting cram courses and mail-order education.

Newspaper advertisements and direct mail promotion for his current enterprise follow a recognizable pattern typified by his announcement reproduced on page 198.

Young men and women are urged to take correspondence courses in pharmacy under the guise of possible registration in Massachusetts where there is no prerequisite law. Jacobs' circulars also indicate that his "graduates" may obtain Federal Civil Service positions as pharmacists. This is of course untrue, and the U. S. Civil Service Commission recently advised "Teacher of Pharmacy" that he is spreading incorrect information.

Let us write to Jacobs for further details on this alluring short-cut to pharmacy. Here is his reply, sent to a young woman in Iowa.

Dear Miss ———:

Thank you for your letter of November 29. You will find literature enclosed explaining fully the correspondence (home-study) course in pharmacy in preparation for the State Board of Pharmacy Examinations for the Registered Pharmacist license in Massachusetts and not Iowa for Iowa demands college of pharmacy graduation for admission to the Registered Pharmacist examinations.

Unlicensed drug clerks and unlicensed proprietors of drug stores should make every effort to obtain a license in at least one state before all demand college of pharmacy graduation†. This is your last opportunity to become registered

(Continued p. 198)

* The JOURNAL is especially indebted to the National Association of Boards of Pharmacy for use of its extensive file of source material.

† The only states not requiring college graduation today are Massachusetts, Nevada and Vermont.—THE EDITOR.

CONNECTICUT PHARMACEUTICAL ASSOCIATION

OFFICE OF THE PRESIDENT
FAIRFIELD PHARMACY, FAIRFIELD, CONN.

April 4, 1946

President
RALPH GENTILE,
Fairfield
First Vice President
WM. TRACEY CADWELL,
New Haven
Second Vice President
IRVING L. KAUFMAN,
Hartford
Third Vice President
PHILIP CARR VARNUM,
Glenbrook
Secretary-Treasurer
ALICE-ESTHER GARVIN,
New Haven

Mr. W. H. [redacted]
[redacted] S. Court House Road
Arlington, Virginia

Dear Mr. [redacted]

Please be informed that I have never authorized "Teacher of Pharmacy in Mass." to use my name as an endorsement of his present program.

May I strongly recommend that in view of the trend towards higher educational pre-requisites now taking place in pharmaceutical circles, that you plan on entering a recognized college of pharmacy in order to obtain a registered pharmacist license. In this manner you will be assured of the proper training and background necessary for a successful career in this profession.

Very truly yours,

Ralph Gentile

STATE OF CONNECTICUT

Board of Pharmacy Commissioners

CHARLES GUSTAFSON, SECRETARY
ROOM 418, STATE CAPITOL
HARTFORD, CONNECTICUT

Commissioners
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VICE-PRESIDENT
WILLIAM HARRIS
HARTFORD
SECRETARY AND TREASURER
CHARLES GUSTAFSON
HARTFORD
JOHN ARTHUR PELCHAR
TERRYVILLE
FRANK C. GROSS
STAMFORD

April 4, 1946

FELIX BLANC
EXECUTIVE SECRETARY
AND REGISTRAR

Mr. W. H. [redacted]
[redacted] South Courthouse Road
Arlington, Virginia

Good Morning, Mr. [redacted]

March 29th, I wish to state very emphatically first, that I have never permitted my name to be used in favorable connection with the advertising sent out by the Massachusetts "Teacher of Pharmacy"; second, that I have never even heard from the "Teacher"; and third, that his name has not been used on any of the advertising.

Who is he? The members of our State Pharmacy Commission have gone on record both at meetings of pharmaceutical groups in our State and in the press (our official journal, the Connecticut Pharmacist, carried a column advising men and women who might be interested in taking the course to ask themselves where they might practice pharmacy after they completed it) as opposed to such misleading advertising.

It is unthinkable that anyone, particularly a State Pharmacy Commissioner or any member of the State Pharmacy Commission, should lend his name to this project; I hope I have expressed myself with sufficient clarity so that anyone who reads this letter will be assured that I have never endorsed the 'Teacher of Pharmacy' nor the advertising.

Very truly yours,

Felix Blanc, Executive Secretary
BOARD OF PHARMACY COMMISSIONERS

REFERENCES of the Teacher, both widely publicized, give their recommendations to a prospective pupil.

without a high school certificate and without a college degree, for the college law goes into effect here in 1948.

Even though a license in Massachusetts has no legal status in your state and even though you may not care to leave your state, yet you should make every sacrifice to obtain a license in Massachusetts as compensation for the many years you have given to pharmacy and further because a Massachusetts license hanging on your wall will certainly add prestige to you in the eyes of your customers and add more respect to you from the physicians in your neighborhood.

Then again, who knows what valve a license in any state may have all over the country by new legislation in the future, especially after January, 1948, when Massachusetts will also require college of pharmacy graduation?

Furthermore, you may get a notion in your head to practice pharmacy or own a drug store in Massachusetts; or even act as a saleswoman or representative or detail-woman in your state for one of the pharmaceutical houses, or be employed in the drug room of a hospital or institution, and these positions mostly demand a license in any state.

The knowledge, training, and education gained from this thorough, comprehensive, and excellent course in pharmacy is alone worth many times the tuition fee even if you do not take the State Board examinations here. Thousands of drug clerks have benefited from this course for the past thirty years and there is no doubt that you also will benefit from it.

We are compelled to inform you that the tuition fee for the correspondence course is to be increased to $250 on January 1, 1946; also that the tuition fee for the private tutoring course is to be increased to $500 on January 1, 1946. Please take note of the many advantages attached to enrolling at this time, and send in your enrollment blank by return mail even if you do not want to actually start your studies until after the first of the year. You will receive every possible help and courtesy throughout your studies. Do not delay this any longer for later on in life you may regret that you did not

YOUTHS tempted to take the "Teacher's" correspondence course are apt to find themselves in a vocational blind alley. A typical advertisement currently appearing in metropolitan newspapers is shown below.

℞ DRUG CLERKS . . become
Registered Pharmacists
High School or College not Required
Opens opportunities as drug store owners or managers, pharmacy house sales, detail men; or in Civil Service.
Until 1948 drug clerks can take the Massachusetts State Board examinations for the Registered Pharmacist license — if they've had four years' experience in drug stores, are 21 years old and a citizen. Massachusetts residence not required.
Our Correspondence Course in Pharmacy, or Private Tutoring Course at Springfield. Mass., prepares you to take examination. Complete Correspondence Course $250; Private Tutoring Course $500. ENROLL NOW — thousands of America your future is pharmacy — "opa" in pharmacy world. WRITE: successful graduates — many are
TEACHER OF PHARMACY (Est. 1915)
1337 Main Street - Springfield 3, Massachusetts

take advantage of this last opportunity to become a full-fledged Registered Pharmacist.

Cordially yours,
TEACHER OF PHARMACY
(s) Irving Jacobs, Ph.G., Director

How long does it take the student to complete "this thorough, comprehensive and excellent course" of 25 lessons? About six weeks or so, says Jacobs, although students can take as long as they like. In this way they "obtain a thorough knowledge of . . . theoretical and practical pharmacy, inorganic and organic chemistry, materia medica, botany, toxicology, posology, pharmaceutical and chemical arithmetic, pharmaceutical Latin, prescription incompatibilities, previous State Board questions and answers, etc."

Why do university professors take four years and more to teach these sciences when this "Teacher of Pharmacy" can do the job in a few weeks by mail? His academic background must be superb—but let's look at the record.

Jacobs claims, or admits, that his instruction is backed by thirty years of experience. Indeed, the ink was scarcely dry on his diploma before he is said to have opened the "Hudson Institute of Pharmacy" in a dingy hall room in Jersey City. He was also listed as an instructor at the "Columbia College of Jersey City" which had catalogs printed but never functioned, its charter having been revoked by the New Jersey State Board of Education. Not to be deterred, Jacobs then started a venture of his own in Brooklyn, according to an early exposé of this phase of his career.*

Ph.G. Thrown in for $10

By 1920 Jacobs was dean of the so-called pharmacy school of the notorious "Lincoln-Jefferson University," which gave "correspondence courses leading to the B.A., B.Sc., Ph.B., M.A., B.L.C., LL.B., B.D., S.T.D., Ph.D., etc." His diploma mill not only granted the Doctor of Pharmacy after "ten large lessons by mail" but if the student was not a college graduate the Ph.G. degree was thrown in for $10 extra.

Apparently the Lincoln-Jefferson "School of Pharmacy," which had "offices" in Chicago, was operated by Jacobs from the East. For later, in 1925, when Lincoln-Jefferson and other diploma peddlers were broken up by a sweeping investigation, Jacobs was also revealed as the head of the "Connecticut School of Pharmacy" in Hartford, which operated in a similar fashion and was "affiliated with a western University."

In trying to forestall the effect of tighter laws and professional advancement upon his activities, Jacobs had made a desperate effort to nullify the Connecticut college prerequisite by extension of the exemption date. Fortunately for this state, the attempt failed despite Jacobs' acquisition of the title of Chairman of the Execution Committee in a hurriedly organized Connecticut Drug Clerks' Association.

Greener Pastures

Finally, Jacobs decided that a change of climate would be desirable, and moved to Tennessee where he promoted his activities with the same fine phrases he still finds effective today.

In 1936 he had no difficulty in obtaining registration in Missouri "on diploma," and subsequently an intensive advertising campaign was started by the "Missouri-Tennessee Pharmacy School," which had the familiar earmarks of a Jacobs venture. The school had no equipment or classrooms of its own. Sessions were held one night each week at the Y. M. C. A. in several Tennessee and Missouri cities.

Next, Jacobs launched a pretentiously respectable project, incorporated as the "Missouri College of Pharmacy" and offering "courses to conform with requirements of the Missouri State Board of Pharmacy."

Although the National Association of Boards of Pharmacy cautioned against recommendation of the school, the then Missouri Board secretary advised the "College" that the curriculum of studies met with the Board's approval and that graduates would be admitted to examinations for licensure.

When the school solicited students from all states on what were considered false promises, the National Association of Boards of Pharmacy again voiced its opposition. In a confidential memorandum to state boards which might be asked to recognize the "Missouri College," the N. A. B. P. called attention to the past record of Jacobs, the cram-school type of advertising employed, and the fact that the institution was apparently conducted for profit. The catalog, which listed neither administrative officers nor faculty members, carefully stated that the "college reserves the right to make such changes in the curriculum, schedule, calendar, regulations, faculty, etc., as circumstances may require."

The wisdom of the N. A. B. P.'s stand soon be-

* *Pharmaceutical Era*, January 19, 1924.

came apparent when the long-heralded opening of the college failed to materialize in the fall of 1936 and creditors filed a petition for receivership.

Taking this incident in his stride, Jacobs' energies veered to his "Missouri-Tennessee Pharmacy School," which was then holding cram classes in a St. Louis hotel.

His References

It is interesting to note that many of the references listed for this operation back in the 30's appear on Jacobs' list of references now being used to promote his activities centered in Massachusetts. Of course new names have been added, and "Teacher of Pharmacy" makes much of the fact that the 1946 president of the Connecticut Pharmaceutical Association and the present executive secretary and former inspector for the Connecticut Board of Pharmacy are listed among his references. As might be expected, the names of these men are being used without their consent and against their wishes (see page 197). Moreover, they consider Jacobs' 25-easy-lessons-by-mail wholly inadequate for the modern practice of pharmacy.

We have not determined with certainty just when Jacobs left Missouri, but his days were numbered when the Missouri Board scandal broke in the spring of 1937. A group of students who had paid the cost of a four-year college education were incensed over the fact that certain cram-school students allegedly were permitted to cheat their way through the Board examinations. With right thinking Missouri pharmacists fully aroused, notably the Alumni Association of the St. Louis College of Pharmacy, the Governor ordered a full scale investigation by the Attorney General.

Out of the testimony emerged one fact of particular interest here: The Missouri Board had made certain changes in its regulations which made it possible for Jacobs' "graduates" to gain admittance to examinations. Moreover, affidavits and testimony of the students and of A. F. Schlichting, now dean of the St. Louis College of Pharmacy, indicated that there had been wholesale cheating. In the end, the Governor ousted the entire Pharmacy Board except the president, and a new college prerequisite law was passed enabling the new Board to require applicants to be four year graduates.

In all likelihood such an atmosphere was not healthful for Irving Isadore Jacobs, for within a few months the "Kenmore School of Pharmacy" in Boston was offering a "thorough and complete one-year course."

For some reason Jacobs soon relinquished active charge of this enterprise to open the "Boston Institute of Laboratory and X-Ray Technique" a few doors down the street. The promised instruction from eminent New England physicians and surgeons failed to materialize, however, and in 1939 complaints from discontented students soon had Jacobs embroiled in another state investigation with the backing of the Boston Better Business Bureau and the American Association of Clinical Pathologists. Federal authorities later joined the Attorney General's office to see if his cleverly worded promotion was in violation of the postal laws. Officials ordered the school to accept no more money from applicants until a real reorganization had taken place with acceptable equipment and instructors.

Whether Jacobs ever tried to operate the enterprise legitimately is not clear from the available record, but a few months later, in September, 1940, he had a correspondence school in pharmacy operating in Springfield, Mass., his present location.

He Tries Retail Pharmacy

As a diversion in 1943, Jacobs purchased the pharmacy of Thomas Salzano in Maplewood, N. J. He immediately began extensive advertising and underselling. Within four months the pharmacy's stock had been depleted by something over $1000. The money Jacobs received he pocketed. Finally it was necessary for Pharmacist Salzano to foreclose the chattel mortgage he held and take over the pharmacy with the reduced inventory and considerable indebtedness contracted by Jacobs.

In a letter to the New Jersey Board regarding this case, a member of the law firm of Lum, Fairlie and Wachenfeld went "on record as stating that I will hold myself in readiness to personally bring professional charges in the event you apprehend Mr. Jacobs."

Meanwhile, "Teacher of Pharmacy" continued to promote his cram course anonymously from the Springfield address. The steady advance of the profession slowly constricted Jacobs' field of operation, however. Since the college prerequisite law of Massachusetts becomes effective in 1948, he has currently launched a feverish promotion from his sanctuary there.

Needless to say, only disappointment awaits those who participate in this travesty on professional pharmacy. The few mail-order

HE OFFERED TO SERVE

As war clouds gathered in 1940, Jacobs apparently felt impelled to offer his services for the defense of the nation. THIS JOURNAL has received a copy of a letter which was reportedly written by Jacobs to President Roosevelt. After modestly describing himself as a "well qualified expert" and stating in seven "whereas's" why wartime America needed his type of pharmaceutically trained personnel, this proposal was offered:

"THEREFORE it is my suggestion and recommendation that the United States immediately authorize the institution of classes of instruction in theoretical and practical pharmacy in various states throughout the United States. . . . Thousands of young men and women will thrill at the opportunity of undertaking this interesting work and serving the country in peacetime at the training camps and in wartime at the military dispensaries at base hospitals. I shall be honored to report to Washington at your command, to discuss this plan with you or your authorized agent to the end that the plan could be placed in operation at once. If authorized to do so," said Jacobs, "I would have the classes started in September [1940] and by the end of October, 1941, I would have available for government service 2500 young men and women. . . ."

pharmacists who may succeed in obtaining a license in Massachusetts—or in Vermont or Nevada which still hold out against the pharmaceutical needs of modern medical care—will find themselves barred from practice by all state governments elsewhere in the country. Such pharmacists cannot secure a license either by reciprocity or by examination in any other states.

Even where standards are so low that Jacobs' "graduates" are eligible for examination the odds are heavily against them. Only 40 out of 226 non-graduate applicants examined in 1943 were licensed. Only 26 out of 158 got by the examining board in 1944.

Obviously, Jacobs has pulled a shoddy academic robe over the moldy skeleton of a teaching technique that was unanimously condemned decades ago as totally inadequate for professional training. Prospective students are being misled both as to the adequacy of the instruction and the future opportunities which will be theirs.

No governmental, professional or educational group has approved Jacobs' activities. Jacobs, "Teacher of Pharmacy," has never been associated with any institution approved by an accrediting agency. Jacobs' "schools" and "colleges" have not had buildings, libraries, laboratories or other equipment essential for a bona fide, reputable educational institution in the pharmaceutical field.

To obtain a pharmacist's license today, the governments of 45 states and the District of Columbia require that the applicant (1) be a high school graduate, (2) hold a college degree based on four years of professional study in a recognized institution, (3) have at least one year, in most instances, of practical experience or internship under a licensed pharmacist and, (4) pass a comprehensive state examination.

Moreover, because of the rapid advances in pharmaceutical and medical science, the American Association of Colleges of Pharmacy has considered favorably the adoption of a fifth year of college work to prepare pharmacists fully for their modern public health responsibilities.

To safeguard the public health, to protect gullible youth, to maintain high standards of pharmacy's essential services, there can be no doubt that activities such as have been recorded here must be curbed. Pharmacists and others in public positions are asked to join with the American Pharmaceutical Association in this objective.

Qualified pharmacists and the State Board in Massachusetts can be expected to explore every avenue of legal restraint. Pharmacists elsewhere should place this information in the hands of newspaper editors who have accepted "Teacher of Pharmacy" advertising and also prepare letters for the editorial page warning against the lure of this propaganda and outlining the requirements for the practice of pharmacy in their state. Local Better Business Bureaus and other civic organizations should be given full information.

The factor which has given this type of promotion any possibility of financial success is the continued refusal of the legislatures of Vermont and Nevada, and the long postponement in Massachusetts, to place pharmaceutical licensure on a respectable and safe basis as far as the public health is concerned. Pharmaceutical associations in these states have done their part but public sentiment has lagged behind.

The U. S. Civil Service Commission fortunately has ceased to be an unwitting accomplice to this type of activity. How long will it take for the representatives of the people in these

pharmaceutically backward states to see the light? "Teacher of Pharmacy" can ensnare the ignorant and the gullible only as long as he has access to the newspapers, the mails and the radio for his announcements and while such good names as Massachusetts, Vermont and Nevada can appear in his announcements as havens of refuge for pharmacists with substandard qualifications.

If you desire a reprint of this article write to the JOURNAL, *2215 Constitution Avenue, N. W., Washington 7.*

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MOLD MUTANT PROVIDES HIGH YIELD OF PENICILLIN X

Isolation of a new strain of penicillium that gives relatively high yields of penicillin with at least half of it in the potent X form was announced at the meeting of the American Association for the Advancement of Science in St. Louis. This is in contrast to yields of from one-seventh to one-fifth of penicillin X in the product of many of the strains previously tested.

Ultraviolet irradiation of penicillium cultures was the technique used by Kenneth B. Raper and Dorothy F. Alexander of the Department of Agriculture to produce the mutant. The evidence is not conclusive that the new strain resulted from the irradiation but this is probable.

A higher yield of penicillin X has important implications because this form is two or more times as potent on many organisms as commercial penicillin (mainly penicillin G) and is also effective against several pathogenic organisms that do not yield to commercial penicillin.

Another advantage of penicillin X is that it does not seem to be eliminated as rapidly as the other penicillins, and therefore tends to check infections more rapidly.

Penicillin X may be separated by a simple process from the mixed product recovered after fermentation. Penicillins F, G and K are soluble in chloroform, while penicillin X is not. This makes practical the isolation of the more effective form on a commercial scale. Cultures of the new mold strain, providing a high yield of penicillin X, are available to manufacturers.

The mutant thrives in standard nutrient media now used, and in other ways appears similar to its parent strain.

D. C. RESIDENTS FAVOR COMPULSORY HEALTH INSURANCE

Seventy per cent of the residents of the nation's capital favor President Truman's health insurance plan, which is incorporated into the Wagner-Murray bill, according to a poll taken by the *Washington Post.* Twenty-one per cent of D. C. residents object to the health plan, chiefly on the grounds that there are already too many deductions from their pay checks. Nine per cent of those questioned were undecided.

Almost 9 out of 10 Washingtonians earning less than $4000 yearly favor the plan, but higher income groups support the plan by a slightly smaller majority. Of those who now have some type of private insurance protection, 79% nevertheless favored compulsory health insurance.

LIQUID DENTIFRICE FORMULA

A liquid dentifrice developed at the Rochester (N. Y.) State Hospital by Ralph W. Englehardt, chief pharmacist, has the following formula (*Bull. Am. Coll. Apoth.*, 7:6, 1946):

Sodium alginate*	4	Gm.
Aqua dest.	200	cc.

Allow this combination to stand overnight, and add—

Saccharin soluble	0.25	Gm.
Aqua dest.	20	cc.

To the combination, now add—

Flavor**	8	cc.
Alcohol	100	cc.
Glycerin	40	cc.

The combination then is mixed and added to—

Sodium lauryl sulfate†	20	Gm.
Aqua dest.	150	cc.

Finally add—

Amaranth solution (5%)	1	cc.
Aqua dest., *q.s. ad*	500	cc.

The product is completely homogenized and distributed in convenient dispensing bottles.

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* Sodium alginate is available from R. F. Revson Co., 144 W. 18th St., New York 11, N. Y.

** Any flavor may be employed. The following combination is used by Mr. Englehardt:

Oil of Anise	
Oil of Cassia aa	8 cc.
Oil of Caraway	16 cc.
Oil of Peppermint	68 cc.
Methyl Salicylate *q.s. ad*	100 cc.

† 'DUPONOL C' from E.I. du Pont de Nemours & Co., Wilmington 98, Del., was used.

DR. CHARLES WHITEBREAD
PHARMACIST AND MUSEUM CURATOR

DR. CHARLES WHITEBREAD, shown on the cover of this issue, holds one of the most unusual positions occupied by a pharmacist. From his office in the U. S. National Museum he has directed the development of the Division of Medicine and Public Health for more than a quarter of a century.

Those visiting the nation's capital see here a remarkable series of exhibits on the health professions, among which pharmacy finds its rightful place. With more than 2,000,000 persons visiting the Museum annually, Dr. Whitebread's work assumes an important role in the profession's public relations, creating a better understanding of pharmacy's part in medical care, both modern and historical. The white-haired, genial curator retains a keen interest in pharmaceutical affairs, although pursuing a career that has taken him afield from early activities in retail pharmacy. He has contributed a number of pharmaceutical papers to THIS JOURNAL and other publications, and has prepared several government tracts usually on historical subjects.

Born in Oscoda, Michigan, in 1878, Dr. Whitebread came to Washington while still a young man to enter the School of Pharmacy at George Washington University. Here as an honor student he studied the profession which formed the background for his life's work at the Museum. After obtaining the Doctor of Pharmacy in 1911, he practiced for several years in various retail pharmacies in the District of Columbia.

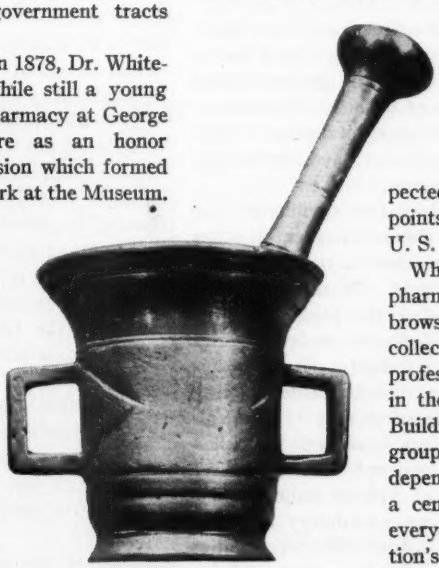
Although Dr. Whitebread had entered government service in the last days of "Teddy" Roosevelt's administration, it was in 1918 that he became Associate Curator at the U. S. National Museum, in charge of the Division of Medicine and Public Health.

The present panorama of exhibits in pharmacy and allied fields stems from a modest beginning in 1876, when a collection of drugs was displayed at the famous Centennial Exposition in Philadelphia., Pa.

Later transferred to the Department of Agriculture, thence to the National Museum, the collection lay dormant until a naval surgeon, Dr. J. M. Flint, was appointed to start work on a Section of Materia Medica. After the retirement of the first curator, Dr. Whitebread was selected to guide the development of the collection to its present stature in the Museum, which is part of the internationally renowned Smithsonian Institution.

Today's visitor will find extensive sections devoted to medicine, pharmacy, materia medica and public health. Besides portraying the sweep of pharmaceutical history through the ages, the section of pharmacy exhibits shows modern processes and products, pharmacy equipment, and prescription ingredients with many of the crude drugs from whence they come.

At present Dr. Whitebread devotes much of his time to the exacting task of directing reconstruction of the Old Apothecary Shop, which is being deposited in the museum by the AMERICAN PHARMACEUTICAL ASSOCIATION.* This historic European pharmacy is expected to be one of the high points of interest in the U. S. National Museum.



When in Washington pharmacists will want to browse through these rare collections depicting the profession. They are housed in the Arts and Industries Building of the Smithsonian group at 9th St. and Independence Ave., S. W., a center of attraction for everyone visiting the nation's capital. The pharmacist will find here a warm and personal welcome extended by his friendly and unusual colleague, Dr. Whitebread.

* For detailed information on this unique collection, which was given to the A. PH. A. in 1945 by E. R. Squibb and Sons, see THIS JOURNAL, 6:184, 1945, and 7:157, 1946.

DENTAL CARIES AND Sodium Fluoride

by PHILIP JAY*

A REPORT AUTHORIZED BY THE COUNCIL ON DENTAL THERAPEUTICS, AMERICAN DENTAL ASSOCIATION

FLUORIDE IN DENTRIFICES OR MOUTHWASHES NOT JUSTIFIED BY PRESENT DATA, ALTHOUGH SMALL AMOUNTS IN DRINKING WATER DURING YOUTH LOWERS DENTAL CARIES....TOPICAL USE MAY BE HELPFUL IN CHILDREN

THE inverse relation between fluoride-bearing domestic water and the prevalence of dental caries in children has been definitely established. The intensity of dental caries attack as measured by the extent of caries experience in the permanent teeth of children twelve to fourteen years old who are continuously exposed to fluoride water is strikingly lower than that in children who live in neighboring communities supplied by fluoride-free waters.

Observations to this effect have been made by Dean[1] and his associates in the United States, by Ockerse[2] in South Africa, by Ainsworth and Weaver[3] in England and by others in different parts of the world. This is one of the few findings in dental caries research that have not become the subject of controversy.

Because of the toxic nature of fluorine, the possible application of this development in caries research has been approached cautiously by most investigators in this field. Others have been less conservative so that the prospect of the fantastic exploitation of fluorine in dental caries control is a menacing possibility. It is for this reason that an attempt will be made to bring this rapidly expanding subject up to date, although adequate reviews have been published from time to time in the past.[4, 5]

The preponderance of evidence indicates that fluorine is the active caries-inhibitory factor in the water supplies. All of the communities studied which were supplied by water containing more than 0.5 p.p.m. (parts per million) of fluorine had low dental caries rates. No correlation was observed between the prevalence of dental caries and the mineral content of the water as indicated by the total hardness.

As an illustration, Colorado Springs was found to have a caries rate of 246 (the number of permanent teeth with caries experience per hundred children twelve to fourteen years old). The fluorine content of the water was 2.6 p.p.m. The caries rate of Elmhurst, Ill., with a water supply containing 1.8 p.p.m. of fluorine was 252. The caries rates in both of these fluoride areas were low; yet the total hardness of the Colorado Springs water was 27 p.p.m., as compared with 323 p.p.m. of the Elmhurst water.

To illustrate this point further, the high caries rate of Middletown, Ohio (703), was associated with water which was practically fluorine free (0.2 p.p.m.), but which had a total hardness of 329, as compared with 27 p.p.m. for Colorado Springs.[6]

The low caries rate in Deaf Smith County, Texas, has been attributed, in part, to the high phosphorus content of the locally grown produce. In reality, the Texas foods are not remarkably different in phosphorus content from foods produced in most regions of the United States, regardless of the incidence of dental caries.[7]

Solar radiation, which has also been suggested as a complicating factor, may be eliminated from

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The Council on Dental Therapeutics has authorized publication of this report as one of a series on pharmacology and therapeutics. The opinions expressed are those of the author and do not necessarily reflect the opinion of the Council. *Journal of the American Dental Association*, 33:489 (April), 1946; published in THIS JOURNAL by permission.

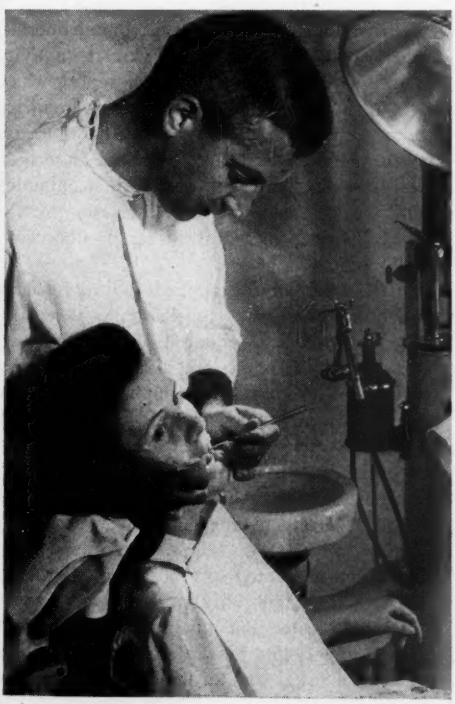
* School of Dentistry, University of Michigan, Ann Arbor.

consideration. The neighboring cities of Oak Park and Maywood, Ill., are exposed to the same amount of sunlight, but the caries rates differ greatly. Maywood, with a water supply containing 1.2 p.p.m. of fluorine, has a caries rate of 258, as compared with the high caries rate of 722 in Oak Park, which is supplied with fluorine-free Lake Michigan water.

The domestic water supplies of the low-caries communities vary in other respects, but they all contain fluorine, so that fluorine seems to be the active principle involved.

Experiments in Animals

Dental caries can be produced experimentally in susceptible rats by the inclusion of coarsely ground corn or rice in the ration.[8] The caries-producing potency of this diet is greatly diminished by the inclusion of fluorine, either directly in the ration or in the drinking water used by the experimental animals.[9] This finding is a further indication that fluorine is responsible for the caries-inhibiting property of certain domestic waters. The idea loses specificity somewhat by the fact that iodo-acetic acid, another enzyme inhibitor, is also effective in reducing the severity of rat caries.[9] Inasmuch as experimental rat caries is so dependent upon the physical quality of the diet, its similarity to caries in human beings is not complete. The inhibition of rat caries by fluorine is, therefore, not an absolute indication that fluorine would be equally effective in man.



On the other hand, hamster caries can be produced on either coarse or fine diets, thereby more closely resembling caries in man,[10] and caries in this animal is also inhibited by the inclusion of fluorine in the experimental diet.[11] Unlike the rat, the hamster also develops smooth surface caries under experimental conditions. It would be interesting to know if fluorine inhibits this type of caries as well as the occlusal type*, since the reduction of dental caries on the smooth surfaces of the teeth is most striking in persons residing in fluoride areas. From the available data on the hamster, this important distinction cannot be made.

Caries in animals has been inhibited repeatedly when the fluorine was introduced by mouth. The fact that fluorine introduced subcutaneously in comparable doses does not inhibit rat caries may be a clue to the nature of this phenomenon.[12] When Arnold and McClure injected amounts of fluorine comparable to 50 p.p.m. in drinking water for rats, they found that the fluorine content of molar enamel had increased but that caries was not inhibited. This finding might be interpreted to indicate that the fluorine was adsorbed by the dentinal aspect of the enamel and hence exerted no antienzymatic or antibacterial effect on the oral surface of the teeth.

The increase in the fluorine content of rat molar enamel following the feeding of fluorine by mouth and the fact that this increase was accompanied by the reduction of caries activity suggests that enamel is capable of adsorbing this substance.[13, 14] Studies by Armstrong, which indicate that caries-free teeth contain more fluorine than carious teeth, lend still more credence to the probability that fluorine is responsible for the low prevalence of caries in communities supplied by fluoride-bearing waters.[15]

Addition of Fluorine to Water

The evidence is very impressive, but still largely presumptive. It remains to be seen whether the addition of fluorine to a fluorine-free drinking water will be accompanied by a decline in the rate and intensity of caries attack in a population exposed to water so treated. Two such studies are now in progress.

* Occlusal caries is that occurring on the masticating surfaces.—THE EDITOR.

The water supply of Newburg, N. Y., is being treated with sodium fluoride under the supervision of the New York State Department of Health, and the water supplied to Grand Rapids, Mich., is being similarly treated by the Michigan Department of Health in collaboration with the U. S. Public Health Service, and the University of Michigan. In each case, the water, as it is distributed, contains approximately 1 p.p.m. of fluorine, and the projects are being conducted under experimental conditions with suitable checks and controls.

The trends will very likely not be discernible before 1950 and possibly later. Until such time as the progress of these studies can be evaluated, the universal treatment of water with fluoride, except under rigidly controlled experimental conditions, is not indicated.

One part per million of fluorine was chosen inasmuch as mottled enamel is of no clinical importance at that level. Although the caries rates are inversely proportional to the amount of fluorine in the water, the declining caries rates level off at from 1 to 1.5 p.p.m., so that the maximum inhibition of caries occurs at approximately 1 p.p.m.[6]

There is no reason to believe that toxic effects will accrue from fluorine ingested at this level. McClure has calculated the fluorine intake for children exposed to drinking water containing 1 p.p.m. of fluoride to be from 1 to 1.5 mg. per day from food and water.[16] The fluorine content of foods is the same in all parts of the United States so that in the treatment of water supply the natural geographic distribution of fluoride need not be considered. The lethal dose of sodium fluoride is considered to be about 4 Gm. A dose of 228 mg. has been known to produce toxic symptoms.[17] In view of the fact that 88% of the fluorine ingested is excreted in the urine and 8% in the feces, the ingestion of 1 or 2 mg. of fluoride daily does not constitute a hazard.[18, 19] The fluorine not excreted is stored in the skeletal system, but pathologic conditions have not been observed in thousands of persons in this country who have been exposed for many years to water containing 1 to 2 p.p.m. of fluoride.[20]

The epidemiologic studies do not indicate that the caries-inhibiting factor in domestic water will benefit persons who move into fluoride areas after the teeth are formed. There is some evidence that adult males who had spent the first eight years of life in fluoride areas before moving out had less caries than those spending all of their lives in fluoride-free areas, as revealed by the examination of selectees in induction centers in Illinois.[21]

Other Methods of Application

Other methods of fluorine application have been suggested for those who are not likely to benefit by the treatment of domestic water. They are chiefly the use of capsules containing bone meal, which is rich in fluoride, and the topical application of sodium fluoride in solution or paste form.

The evidence favoring the use of bone meal is, to date, not impressive. One study reports its successful use in nine adults.[22] This was a preliminary investigation which lacked controls, and extravagant claims were not made by the author. The fact that fluorine ingested in bone meal is largely excreted in the feces is an indication that it is not readily metabolized in this form.[23] The publication of this study, however, provided the stimulus for the sales promotion of bone meal products for caries control. There is no evidence that the ingestion of fluorine after tooth calcification will arrest caries activity in man. Favorable results have been reported when fluoride was applied topically to the teeth. The use of bone meal in capsule form precludes the possibility of contact with the teeth, so that it is not likely that this form of fluorine therapy would be at all effective.

Neither does it seem likely that sodium fluoride, as used in a mouthwash, will reduce caries activity significantly. The one published report which suggests its use does not contain convincing evidence that 5 p.p.m. of sodium fluoride in a mouthwash is beneficial.[24] No data have been published on the effect of fluorine-containing dentifrices so that there is no indication for the use of fluorides in mouthwashes or dentifrices at this time.

The use of fluoride applied topically to the teeth has received considerable attention. Cheyne[25] treated 27 children four to six years old with 0.05% potassium fluoride in aqueous solution. The solution was applied to all of the teeth after a prophylaxis, and the treatment was repeated four times during the year of the study. A control group was given the prophylactic treatment without the fluoride solution. The treatment group averaged 3.09 new lesions as compared with 6.04 for the control group, a difference which amounted to a 50% reduction associated with the fluoride treatment.

Bibby[26] treated one quadrant of the mouth of each of 90 children ten to thirteen years of age with a 0.1% sodium fluoride solution for a

period of one year. Eighty of these children received the treatments for two years. All averaged 3 treatments per year for the entire period. Bibby observed about a 40% reduction in caries activity for the treated teeth. Somewhat less protection was noted for the second year than for the first.

Knutson and Armstrong[27] treated one-half of the mouths of 300 children seven to fifteen years of age with a 2% sodium fluoride solution. The children received 7 to 15 treatments during the course of a year, with a 40% reduction in new caries. Those who received 15 treatments were afforded no greater protection than those who received 7 treatments. These authors suggested that one treatment might be sufficient.

On the other hand, Arnold, Dean and Singleton[28] found that one treatment with 0.5% sodium fluoride solution provided no protection to 94 coast guard cadets, with an average age of 19.6 years. The solution used was weaker than that used by Knutson and Armstrong but stronger than the Bibby solution, and the subjects were of an older age group.

It would seem, then, that multiple treatments of potassium or sodium fluoride solution of 0.05, 0.1 or 2% strength inhibited dental caries in children four to fifteen years of age, while a single treatment with 1% solution did not prevent dental caries in 19-year-old men. It is perfectly obvious that this field requires further exploration, although there is an indication that more than one topical application of fluoride solution may afford some protection against caries for the teeth of young children. Largent and Moses[29] observed no increase in the fluoride content of the urine or feces of subjects whose teeth were treated topically, so it may be assumed that harmful systemic effects will not result from this type of treatment by, or under, the supervision of a dentist.

Action of Fluorine in Caries Control

The nature of the caries-inhibiting properties of fluoride water is not understood. It is clear that continuous exposure to water containing as little as 0.5 p.p.m. of fluoride during the first eight years of life affords most persons a significant degree of protection against dental caries. Whether treatment of domestic water with fluoride will produce the same result will be determined by studies now in progress.

In the meantime, it is interesting to speculate about this curious phenomenon. If fluorine is the specific caries-inhibiting factor present in the water, it must, apparently, be incorporated in the dental enamel to be effective, since it is necessary to ingest the fluorine during the period of tooth development or to have it applied to the surface of the tooth repeatedly in rather concentrated solutions, resulting in an adsorption of the fluoride by the enamel. The fluorine must function in one of two ways. It either modifies the tooth structure in a manner that confers upon it a degree of immunity to caries attack or else it serves to mitigate the potency of the attacking force itself. Since the presence of fluorine does render highly mineralized substances less soluble, it has been suggested that teeth rich in fluorine decay less readily than teeth deficient in fluorine because they are able to resist the acids which ordinarily produce tooth cavitation.[14, 30]

On the other hand, we have convincing evidence that the acid-producing potential of the dental environment has been altered in fluoride water areas. It is not the purpose of this report to embark upon an involved discussion of the etiology of dental caries, but the peculiar relation between oral Lactobacilli and dental caries activity is of importance in a consideration of the fluorine-caries problem.

A consistent finding in the epidemiologic studies of dental caries has been the very low frequency of high saliva Lactobacillus counts in fluoride areas. These findings have been discussed in detail elsewhere,[31, 32] but, as an illustration, attention is called to the bacteriologic studies conducted on the children in Galesburg and Quincy, Ill. The Galesburg municipal water assayed 1.8 p.p.m. of fluorine, and the Quincy water was practically fluorine free, 0.2 p.p.m. One hundred eighty-six saliva specimens were cultured in Galesburg and 209 in Quincy. The calculated dental caries rates for these groups were 189 and 636, respectively. The children twelve to fourteen years old who lived in Galesburg had approximately two carious permanent teeth per child, in contrast to six carious teeth per child in Quincy. Only 28, or 15%, of the Galesburg children had high Lactobacillus counts, as compared with 109, or 52%, of the Quincy children, so that the differences in the bacterial counts in these two cities were, roughly, of the same ratio as the differences in the caries rates. Since the Lactobacillus counts serve as a reliable index of the bacteriologic flora of caries, we have here an indication that the environmental factors of dental caries activity are modified in fluoride areas. If this is interpreted to mean that the attacking force is lacking then the teeth may not be considered, in a strict sense, to be immune

unless they are to be placed in the embarrassing position of resisting something that is not there.

How the fluorine operates to inhibit oral Lactobacilli, and very likely other bacteria which inhabit the mouth, is still a matter of speculation. Since fluorine is not excreted in the saliva, the action is not direct. A possible explanation is that trace amounts of fluorine on the oral surface of the enamel influence the character of the bacterial plaques on the teeth. It will be recalled that large subcutaneous doses of fluorine did not inhibit caries in rats, whereas fluorine fed by mouth was quite effective. This suggests that the fluorine must come directly in contact with the bacterial flora of the tooth in order to prevent caries activity. Fluorine is an enzyme inhibitor and, when it is present in sufficient strength, inhibits bacterial growth and acid production in the test tube. Whether the fluorine in dental enamel exerts a similar influence in the mouth is not known.

Summary

It is definitely established that fewer carious dental cavities occur in persons continuously resident in fluoride areas during the first eight years of life than in persons residing in fluoride-free areas. Their teeth contain more fluorine than the teeth of persons in fluoride-free areas and Lactobacilli do not flourish in their mouths.

There is some indication that fluoride, topically applied, may reduce dental caries in children.

From a public health standpoint, the treatment of domestic water with fluoride appears hopeful. Studies now under way should determine the efficacy of this type of treatment. Should the treatment of public water supply prove beneficial, children in rural areas might be benefited by internal medication with doses of sodium fluoride comparable to the amounts ingested in fluoride areas, or about 2 mg. daily, as suggested by McClure.[16]

On the basis of information now available, the use of fluorides in dentifrices or mouthwashes is not justified.

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SURLPUS SCALES SUBSTANDARD

Caution in purchasing war surplus equipment, such as drug scales, is indicated by the announcement from New Jersey's Department of Weights and Measures that scales recently offered by a New York dealer do not meet the state's requirements. Officials point out that a low price is poor economy if equipment proves to be below regulatory standards.

OCCURRENCE OF OFFICIAL DRUGS IN PRESCRIPTIONS

by HENRY M. BURLAGE

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SURVEY REVEALS EXTENT OF USE OF N.F.-U.S.P. PRODUCTS, ENGLISH NOMENCLATURE PREDOMINANT BUT METRIC MEASURE IS LITTLE USED

FIVE THOUSAND prescriptions received in 25 pharmacies in North Carolina were studied. These pharmacies were located in 24 different communities in 21 counties of the state. Two hundred prescriptions from each pharmacy were sampled: 50 on January 1, 50 on April 1, 50 on July 1, and 50 on October 1, thus allowing for seasonal fluctuations of demands for products.*

One phase of the study involved an examination of the prescriptions to ascertain the number of official products prescribed. These are divided into the following classes: (1) inorganic medicinal substances, (2) organic medicinal substances, (3) medicinal preparations and (4) vegetable drugs. The results are shown in Table I. Other studies relative to this survey have been reported elsewhere.[1, 2]

TABLE I.—NUMBER OF INDIVIDUAL OFFICIAL PRODUCTS IN 5000 PRESCRIPTIONS

Inorganic Medicinal Substances	59
Organic Medicinal Substances	128
Medicinal Preparations	188
Vegetable Drugs	9
Total Number of Official Products	384

TABLE II.—FREQUENCIES OF CLASSES OF OFFICIAL PRODUCTS IN FIVE THOUSAND PRESCRIPTIONS

59 Inorganic Medicinal Substances	754
128 Organic Medicinal Substances	1625
188 Medicinal Preparations	1907
9 Vegetable Drugs	33

The frequencies of the classes listed in Table I are shown in Table II.

Of the number listed in this table, proprietary names were used one hundred and five times for official products.

The number of official products (384) is somewhat more than half of the total number of proprietary items (654) called for in the same number of prescriptions. However, of the proprietaries, only 44 items were prescribed over ten times in 5000 prescriptions, whereas 78

* The survey was conducted during 1943.

official products were prescribed over ten times. The 10 most frequently prescribed proprietaries ranged in frequency from 29 to 68 times, whereas the 10 most frequently prescribed official products ranged from 62 to 753 times in the 5000 prescriptions examined in this North Carolina survey.

Of the 384 official products, Table III indicates those that were used ten or more times in the 5000 prescriptions, listed in order of frequency of use.

TABLE III.—INDIVIDUAL OFFICIAL PRODUCTS USED MORE THAN TEN TIMES IN 5000 PRESCRIPTIONS

60–753 Times

1. Sulfathiazole	537	
Tablets	216	
	—	
	753	
2. Sulfadiazine	206	
Tablets	105	
	—	
	311	
3. Phenobarbital	66	
Tablets	106	
	—	
	172	
4. Thiamine HCl	76	
Tablets (Elix.)	57	
	—	
	133	
5. Tr. Belladonna	99	
6. Camph. Tr. Opium	99	
7. Co. Elix. Pepsin	71	
8. Acetylsalicylic Acid	63	
Tablets	7	
	—	
	70	
9. Diethylstilbestrol	48	
Tablets	28	
	—	
	76	
10. Ferrous Sulfate	34	
Tablets	28	
	—	
	62	

35–60 Times

11. Mercurous Chloride	46	
Tablets	12	
	—	
	58	
12. Sodium Salicylate	43	
Tablets	11	
	—	
	54	
13. Sodium Bicarbonate	53	
14. Tr. Nux Vomica	49	
15. Sodium Bromide	44	
16. Tr. Hyoscyamus	44	
17. Sulfanilamide	27	
Tablets	13	
	—	
	40	
18. Boric Acid	39	
19. Diluted HCl	38	
20. Acid Ascorbic	20	
Tablets	17	
	—	
	37	
21. Sulfaguanadine	23	
Tablets	13	
	—	
	36	

10–35 Times

22. Acid Nicotinic	20	
Tablets	14	
	—	
	34	
23. Potassium Citrate	33	
24. Lactose	32	
25. Ephedrine Sulfate	31	
26. Elix. Terpin Hydrate and Codeine	31	
27. Acetophenetidin	26	
Tablets	3	
	—	
	29	
28. Glycerin	29	
29. Thyroid Tablets	29	
30. Methenamine	20	
Tablets	9	
	—	
	29	
31. Phenol	28	
32. Mild Silver Protein	27	
33. Codeine Sulfate	22	
Tablets	5	
	—	
	27	
34. Bismuth Subnitrate	26	
35. Ammonium Chloride	25	
36. Zinc Sulfate	25	
37. Atropine Sulfate	16	
Tablets	8	
	—	
	24	
38. Potassium Chlorate	23	
39. Ammoniated Hg Ointment	22	
40. Menthol	21	
41. Quinacrine HCl Tablets	21	
42. Quinine Sulfate	17	
Tablets	4	
	—	
	21	
43. Calamine Lotion	21	
44. Chlorobutanol	21	
45. Elixir Five Bromides	20	
46. Aromatic Fldext. Cascara Sagrada	19	
47. Epinephrine HCl	16	
Tablets	2	
	—	
	18	
48. Morphine Sulfate	8	
Tablets	10	
	—	
	18	
49. Salicylic Acid	17	
50. Peppermint Water	17	
51. Isotonic Solution NaCl	17	
52. Magma Bismuth	17	
53. Elixir I.Q.S.	16	
54. Fldext. Cascara Sagrada	16	
55. Ointment of ZnO	16	
56. Theophylline Ethylenediamine Tablets	16	
57. Co. Mixt. Opium and Glycyrrhiza	15	
58. Glyceryl Trinitrate Tablets	15	
59. Nicotinamide	15	
60. Bismuth Subcarbonate	14	
61. Solution of KI	14	
62. Chalk Mixture	14	
63. Tr. Digitalis	14	
64. Iron and Ammonium Citrates	13	
65. Mixt. Rhubarb and Soda	13	
66. Potassium Iodide	13	
67. Lanolin	13	
68. Liquefied Phenol	13	
69. Calcium Gluconate	12	
70. Solution Potassium Arsenite	12	
71. Charcoal	12	
72. Magnesium Oxide	12	
73. Citrated Caffeine	11	
74. Aromatic Spirit Ammonia	11	
75. Syrup Hydriodic Acid	11	
76. Potassium Permanganate	11	
77. Codeine Phosphate	11	
78. Digitalis	11	
79. Tablets Calomel and Soda	11	
80. Chloral Hydrate	10	
81. Methylrosaniline HCl	10	
82. Sodium Sulfathiazole	10	
83. Solution Boric Acid	10	
84. Syrup Ipecac	10	

Miscellaneous Data

1. *VITAMIN PRODUCTS:* These products were called for 226 times under the manufacturer's name. Vitamins under official names were called for 233 times.

2. *LATIN IN THE PRESCRIPTIONS:* Considerable attention has been devoted to the discussion of the use of Latin in pharmacy and it seemed desirable to examine these prescriptions for the use of this nomenclature.

Classifying abbreviations presents an obvious problem. In this study, when there was clear cut evidence that an English word had been abbreviated it was thus classified; all others were assumed to be abbreviations of Latin words.

The survey indicates that:

794 prescriptions had English directions.
946 prescriptions had directions in English words and Latin abbreviations.
125 prescriptions had Latin directions.
615 prescriptions had directions in Latin abbreviations.

The remaining prescriptions had no directions or were not recorded in the copy of the prescriptions submitted.

3490 prescriptions had the body written entirely in English.
26 prescriptions had the body written entirely in Latin.
540 prescriptions had the body written in Latin and English combined.
98 prescriptions had the body written in Latin abbreviations.
342 prescriptions had the body written in English abbreviations.

82 prescriptions were entirely in English.

3. *METRIC SYSTEM OF WEIGHTS AND MEASURES:* Out of the 5000 prescriptions studied only 44 employed the metric system of weights and measures.

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A. M. A. COMMENTS ON PRESCRIPTION WRITING

TIMELY reminders on proper prescription writing have been published in the *Journal of the American Medical Association* (130:214, 1946). Pharmacists may wish to reprint the Journal's comments, given below, in mailings to their physicians:

"The best medical treatment is that fitted to the individual patient. Drug therapy, highly significant in most medical treatment, is secured by the prescription. As Sollmann aptly says, a prescription is 'an order for medicine sent by a physician to a pharmacist.' Some of the practical requirements for writing an effective and correct prescription are often neglected. The instructions for the pharmacist and patient must be legible and intelligible; this is why English is now preferred to Latin. The prescriber should use correct, descriptive names for the ingredients and not just their trade names; such description insures fewer misunderstandings. If an ingredient is official or otherwise open to manufacture by several firms, a firm name should be placed adjacent to the ingredient if the physician wishes to show his confidence in any one manufacturer; otherwise any brand may be used to fill the prescription. The use of English abbreviations and numbers as designations for drugs should be avoided. Complex mixtures should not be ordered if simple ones will suffice. Unrelated substances such as purgatives and hypnotics are not properly included in a single prescription. They are best prescribed separately and timed in their administration to be most effective. The physician should be mindful of the frequency with which prescriptions are refilled without his knowledge. Thus he may limit the number of doses to the actual needs of the patient and state specifically on the prescription whether it can be refilled and, if so, how often. The importance of such directions, for example when barbituric acid compounds are prescribed, is obvious. Of course the pharmacist bears the responsibility of filling the prescription; when he is in doubt concerning the ingredients or directions, it is his moral responsibility to call the prescribing physician; to do otherwise invites disastrous results."

SOME RECENT
ADVANCES IN BIOLOGICAL SCIENCE

MANY developments of interest to pharmacists were disclosed at the annual meeting of the Federation of American Societies for Experimental Biology held at Atlantic City in March. A program covering such varied interests can be reported only in part, points out A. PH. A.'s representative at the sessions, but some of the papers are of particular significance to the profession.

Antibiotics

The danger of microorganisms developing resistance to penicillin and streptomycin was emphasized by Dr. Hans Molitor of the Merck Institute for Therapeutic Research. When employing antibiotics, physicians should use large doses immediately so that bacteria are killed in a few days before such resistance can be developed, and the use of ointments, lozenges and tablets for minor diseases should be avoided.

A clue to the mode of action of penicillin was discovered by Drs. L. O. Krampitz and C. H. Werkman of Iowa State College. Evidence was found by these bacteriologists that penicillin interferes with the metabolism of nucleic acids or nucleotides in *Staphylococcus aureus*.

Bal

British Anti-Lewisite (Bal), which is 2,3-dithiopropanol, was a British wartime development in the control of arsenical war gas, particularly lewisite. Dr. Harry Eagle and coworkers at the Venereal Disease Research Laboratory of the U. S. Public Health Service, Johns Hopkins Hospital, showed that Bal injected intramuscularly, intravenously, or subcutaneously in aqueous or propylene glycol solution is effective in the treatment of acute and subacute mapharsen poisoning in rabbits. The antidotal action, Dr. Eagle said, is related to the ability of Bal to withdraw arsenic from its combination with the cells, and increase its urinary excretion.

Bal is unstable in aqueous solution, but solutions in peanut oil can be sterilized by heat with only a slight activity loss. Benzyl benzoate added to the peanut oil rendered the Bal easily miscible with the oil. Dr. Eagle recommended that the Bal be injected at 4-hour intervals for 4 doses and, in some cases, followed by daily injection for six days. About 200 human cases of arsenic poisoning have been treated to date.

Dr. Arthur M. Ginzler, of the Chemical Warfare Service at Edgewood Arsenal, extended the work on Bal to show its effectiveness against mercury poisoning. Extensive kidney damage was produced by Dr. Ginzler in rabbits by the injection of mercuric chloride. Giving doses of Bal of 0.15–0.3 mg./Kg. five minutes later, resulted in complete prevention of the necrosis. If optimal doses were given, the damage was reduced materially even if therapy was begun as late as thirty minutes after the intravenous injection of mercury, Dr. Ginzler reported.

Antispasmodics

Current interest in the field of antispasmodic and related drugs was reflected in the discussions. Bradford N. Craver, Patricia Seip and Ann Cameron of the Ciba Laboratories disclosed a new and simple method of recording activity of the uterus in intact rabbits and cats. The method has the particular advantage that the same animals can be used for repeated tests if the operating is done aseptically.

Dr. Woodbury and his associates at the University of Georgia have developed methods of studying uterine activity in humans during dysmenorrhea and metorrhagia. The techniques originating in their laboratory can be extended to the study of antispasmodic drugs for the treatment of dysmenorrhea. Dr. Woodbury disclosed the astounding fact that pressures in the uterus often reach 100 mm. of Hg in patients with dysmenorrhea during the relaxation phase, while during contractile periods pressures were as high as 300. In labor the highest uterine pressure recorded was 100, Dr. Woodbury said. It is interesting that dysmenorrhea symptoms could not be elicited by the administration of acetylcholine, histamine or pitocin but could always be attained by pitressin or uterine distention.

For many years allergy has been explained with some degree of satisfaction in terms of histamine liberation. If this theory be true, it would seem logical that a drug which could tie up histamine receptors in the cells and thus prevent histamine from reacting might alleviate symptoms attributed to allergen reaction. Such a drug is benadryl (β-dimethylaminoethyl benz-

hydryl ether hydrochloride). Dr. Irving H. Page and Dr. Arda Alden Green of the Cleveland Clinic Foundation demonstrated its ability to prevent completely fatal asthma in guinea pigs which were breathing atomized histamine. These research workers showed that benadryl reduces the response to a wide variety of pressor, depressor, and vasoconstrictor substances.

Dr. W. A. Selle of the University of Texas confirmed such previous results and showed that 10 mg. of benadryl injected into a 600 Gm. guinea pig protected the animal against three times the minimum lethal dose of histamine. Sensitized animals were well protected against anaphylactic shock.

Salicylates

Dr. Byron B. Clark of Albany Medical College confirmed the work of others that salicylates can interfere with normal bleeding time by interfering with prothrombin production. Rats were found to be more susceptible than rabbits, while dogs were quite resistant. Methyl salicylate, aspirin, and sodium salicylate in equimolar doses had about the same activity. This action is potentiated in the presence of fever, a factor which may have important clinical implications.

Other analgesic-antipyretic drugs having prothrombinopenic activity are: antipyrine, aminopyrine, acetanilid, acetophenetidin, and cinchophen.

Diisopropylfluorophosphate

Originally intended as a war gas, diisopropylfluorophosphate (DFP) was described as a valuable tool in nerve physiology. Prostigmin (neostigmine), which when used as a drug exerts an action analogous to stimulation of the parasympathetic nervous system, is thought by many to owe its action entirely to its ability to inhibit cholinesterase, the enzyme which destroys acetylcholine. Others believe that the enzyme theory can account for only part of the action. Since DFP can completely and apparently irreversibly inhibit cholinesterase, the fact that prostigmin can still elicit some degree of parasympathomimetic action in the presence of DFP, gives this latter group of workers a more forceful argument. Certainly, DFP will help unravel many a mystery in autonomic pharmacology.

The irreversible character of DFP action would point to its possible use in cases of myasthenia gravis, but results at present show that at best it can be only an adjunct to prostigmin or physostigmine to ease the "letdown" as these drugs wear off. Dr. Irving H. Leopold and Dr. Julius H. Comroe, Jr., of the University of Pennsylvania School of Medicine, hold out some hope for the use of DFP in glaucoma, a blinding eye disease.

Vitamins, hormones, vasodepressors, aviation medicine, bioassays and related phases of basic biological research were among other subjects discussed at the meeting by the foremost research workers in the United States and Canada.

Since this was the first convention held since 1942, there was a record attendance. The Federation is a super-organization embracing the American Physiological Society, American Society of Biological Chemists, American Society for Pharmacology and Experimental Therapeutics, American Society for Experimental Pathology, American Institute of Nutrition, and American Association of Immunologists.

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REVISED ASPIDIUM STANDARDS WILL HELP EASE SHORTAGE

Current shortages of aspidium should be somewhat eased by changes in Pharmacopœial standards announced by the Committee of Revision. This action will permit use of stocks of aspidium that do not have the "greenish color" heretofore required, if other standards are met.

Upon recommendation of the U. S. P. Subcommittee on Botany and Pharmacognosy, the description has been changed to read, "Internally pale green to weak greenish yellow or brown." The Subcommittee found that authenticated samples of aspidium which had lost all but traces of green color internally contained more than the minimum requirement of oleoresin and crude filicin. For potency reliance will therefore be placed upon oleoresin and filicin content, rather than upon color. It was also found during the investigation that *Dryopteris filix-mas*, the source of European aspidium, is not limited in range of distribution to Europe but extends into Asia.

Another change authorized in the Eleventh Sheet Supplement is the return to the prewar formula for liniment of soft soap, as given on page 257 of U. S. P. XII. The wartime use of oil of cedar leaf as the perfume, instead of oil of lavender, is abandoned.

Copies of the new supplement may be secured on request to the U. S. P. Committee of Revision, 4738 Kingsessing Ave., Philadelphia 43.

CONFERENCE WILL SEEK MORE UNIFORMITY IN DRUG LAWS

ACTION to bring about greater uniformity in laws affecting pharmacy and to reconcile differences among pharmaceutical groups on legislative aims has been inaugurated by the National Drug Trade Conference through a new committee representing the 9 participating associations.

Meeting at the A. PH. A. headquarters building in March, the Committee decided upon the scope of its activities and set up a series of subcommittees to bring in reports for consideration at the second meeting scheduled for June 4.

Dr. Robert P. Fischelis, secretary of the AMERICAN PHARMACEUTICAL ASSOCIATION, was elected chairman of the Committee, with P. H. Costello, N. A. B. P. secretary, serving as vice-chairman and Ray Schlotterer, F. W. D. A. secretary, acting as secretary.

All types of drug laws will be considered by the Committee in preparing its report on "the feasibility of formulating uniform legislation," as requested by the Conference. These will include:

1. Drug and cosmetic phases of food, drug and cosmetic laws (Federal and state).
2. Narcotic laws (Federal and state).
3. Poison laws (state).
4. Pharmacy laws (state).
5. Barbiturate regulations (Federal and state).
6. Weights and measures laws (Federal and state).
7. Veterinary practice or livestock remedy laws.
8. State medical practice acts, as they pertain to pharmacy.

UNIFORMITY IN DRUG LAWS AND HARMONY IN LEGISLATIVE AIMS were two objectives of the program launched by the special committee of the National Drug Trade Conference at its first meeting at A. Ph. A. headquarters. Members attending were: (standing l. to r.) Dr. E. L. Newcomb, National Wholesale Druggists Association; J. L. Hammer, Jr., American Pharmaceutical Manufacturers Association; A. K. Barta, Proprietary Association of America; George H. Frates, National Association of Retail Druggists; J. Lester Hayman, American Association of Colleges of Pharmacy; Dr. Robert L. Swain (for P. H. Costello), National Association of Boards of Pharmacy; (seated) Ray Schlotterer, Federal Wholesale Druggists Association; Carson P. Frailey (for L. D. Harrop), American Drug Manufacturers Association; and Dr. Robert P. Fischelis, American Pharmaceutical Association.

9. Insecticide and fungicide laws (Federal and state).

10. Caustic poisons acts (Federal and state).

There was general agreement that state and Federal laws dealing with the same subject should be uniform to avoid confusing differences in labeling and regulatory provisions. Recommendations of the Committee will also bring about, it is hoped, a better agreement of thought and action to avoid conflict between different pharmaceutical groups on legislation introduced in the various states.

Of the ten classes of legislation, the following are now being studied by subcommittees: model state food, drug and cosmetic acts; model livestock remedy acts; caustic poison and other poison laws; narcotic laws; and state pharmacy laws with particular stress on the subject of restrictive sales. Subcommittees to study the other types of legislation will be appointed later.

To assure proper representation at meetings, the Committee authorized each participating organization to name a consultant who may also act as alternate for the regular committee member. When needed, specialists in various fields may be called in to consult with the Committee.

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KORAL TOOTH POWDER AND VIORAL CALLED UNACCEPTABLE

Koral Tooth Powder and ViOral, a vitamin preparation, are unacceptable to the Council on Dental Therapeutics, the American Dental Association has announced.

Koral Tooth Powder is essentially sodium bicarbonate. "The unwarranted and exaggerated therapeutic claims made for it," the Dental Association stated, "are against the interests of the public and of the dental profession."

The product ViOral has been promoted for a variety of supposed deficiency symptoms in dental diseases "While the appearance of some of these conditions might be associated with dietary deficiencies," the Dental Association commented, "such is not always the case. Recovery from dental disease would not necesarily be accelerated by the administration of vitamins and, even in those instances in which recovery might be hastened, it is unlikely that such a mixture as ViOral would be the nutritional supplement of choice. . . . Because of their uninformative name and the unwarranted claims made for them, ViOral Tablets are not acceptable for *Accepted Dental Remedies*."

CARD BEARING Rx NUMBER IS RETURNED FOR REFILL

Patients requesting prescription refills who forget to return the container or throw it away constitute a recurring problem for the busy pharmacist. Consequently, some pharmacies enclose with the original prescription a dignified card containing the prescription number for convenient reference. The patient then brings in the card when a refill is necessary.

In the *Bulletin of the American College of Apothecaries*, Samuel R. Chechik of Madison, Wis., states that pharmacists who have used the system over a period of time find it a time saver and much worth while. It also adds an additional professional touch to a properly filled and packaged prescription.

NEW MOLD STRAIN DOUBLES YIELD OF PENICILLIN

A variant of penicillium that may double the production of penicillin has been obtained by research workers at the University of Wisconsin. Cultures of the new strain have already been supplied to a number of manufacturers.

The achievement came from ultraviolet irradiation of mold spores, which causes incompletely understood and unpredictable changes in the genes. X-ray treatment has a similar effect.

Peak productivity has been shown to be nearly 1000 units of penicillin per cc. of culture broth. In 1940 the yield obtained by the early British workers was only about two units from the same amount of broth culture. This was increased to an average of 169 at the Northern Regional Research Station of the U. S. Department of Agriculture; then increased again to 369 units by a variant produced by X-ray treatment of spores at the Carnegie Institution, Cold Spring Harbor, N. Y. It was these earlier variants which the Wisconsin workers used for the irradiation experiments.

By chance, an ultraviolet ray altered a spore in such fashion that the genes which control penicillin production by the mold had doubled in capacity—761 units per cc. of broth on the average with a high of 904. In contrast, a similar series of experiments in California ran up more than 60,000 tests without the fortunate results of the few hundred tests at Wisconsin.

Experiments are continuing, and penicillium mutants yielding two to five times more penicillin are foreseen as a possibility by Prof. W. H.

Peterson, one of the Wisconsin scientists who worked on the project. Even the present maximum yield of about 1000 units probably represents less than 1% of all the metabolic products of the mold, it is pointed out. Yet other molds are known to produce compounds as complex as penicillin in quantities equal to 5 to 10%.

OUTLINE OF A. PH. A. CONVENTION PROGRAM

THE tentative outline of the 1946 meetings of the A. PH. A., N. A. B. P. and A. A. C. P., to be held at Pittsburgh's Hotel William Penn, Aug. 25–30, is as follows:

The American Association of Colleges of Pharmacy will begin its meetings on Sunday afternoon, August 25, and continue until 4 p.m., Tuesday, August 27.

The National Association of Boards of Pharmacy will begin its meetings on Monday morning, August 26, and continue until Tuesday, August 27, at 4 p.m.

At 4 p.m. Tuesday, August 27, the first session of the House of Delegates of the AMERICAN PHARMACEUTICAL ASSOCIATION will be held. On the same evening the joint banquet of the AMERICAN PHARMACEUTICAL ASSOCIATION American Association of Colleges of Pharmacy and National Association of Boards of Pharmacy will precede the first general session of the A. PH. A.

Wednesday, August 28, will be devoted to one session of the House of Delegates and meetings of the Sections.

Thursday, August 29, will include a session of the House of Delegates, a general session and sectional meetings.

Friday, August 30, will be devoted to sectional meetings and the final General Session. The Convention will close at about 5 p.m. with the final General Session including installation of officers.

A more detailed program and the schedule of meetings for other related organizations will be announced later.

Delegates of state associations to the House of Delegates are asked to submit in writing any resolutions which their respective organizations wish to have considered. All resolutions of the convention are passed upon by the House of Delegates, which also transacts most of the business of the convention and is the forum for debate on topics of importance to the profession. The delegates consist of representatives of national and state pharmaceutical associations, as well as representatives of the Sections and Local Branches of the ASSOCIATION.

In a memorandum to state association secretaries, Dr. Robert P. Fischelis, A. PH. A. secretary, has urged that state delegates be named promptly, so that their credentials may be verified and pre-convention plans made. Voting delegates must be members of the AMERICAN PHARMACEUTICAL ASSOCIATION in good standing for at least two years prior to their selection as delegates.

Each affiliated state pharmaceutical association is entitled to one voting delegate and one additional delegate for each 500 dues-paid members of the A. PH. A. who are members of the state association.

The convention program being arranged is expected to attract an unusually large attendance, and pharmacists are urged to make hotel reservations promptly. Hotel William Pitt will house a major portion of those attending the sessions, and other Pittsburgh hotels will be in a position to handle the overflow. Wherever possible double rooms should be used, as the number of single rooms is very limited. Those attending the convention who are not required by special meetings, such as the Council or Executive Committee meetings of other associations, to remain in Pittsburgh on Saturday, August 31, should arrange to check out Friday, August 30.

PITTSBURGH CONVENTION HOTEL

GAPS IN CHEMICAL TABLE CLOSED

PRODUCTION by artificial means of chemical elements 43, 61, 85 and 87, now known to be extremely rare or non-existent in nature, was described by Dr. Glenn T. Seaborg, professor of chemistry at the University of California, in an address before the physical chemistry section of the American Chemical Society's Pittsburgh section. Dr. Seaborg was co-discoverer of the elements plutonium 95 and 96, identified during atomic bomb research.

With the manufacture and the investigation of properties of these four elements, all gaps in the table of chemical elements have been closed. Although all four elements have been reported discovered in earlier years by various experimenters, the researches described by Dr. Seaborg call into question earlier findings based on less positive methods of analysis.

The experiments with these elements were performed with unseeable and unweighable amounts by the "tracer" technique. The course of the elements in reactions is followed by means of their radioactivity instead of by chemical methods.

Radioactive isotopes of element 43 were produced by the bombardment of molybdenum with deuterons, the nuclei of heavy hydrogen atoms. Experiments by Drs. C. Perrier and Emilio Segre showed that the chemical properties of 43 resembled those of its heavier homolog, rhenium, to a greater extent than they resembled those of manganese, the lighter element most resembling it.

Radioactive forms of element 61 were formed in experiments by both Drs. J. D. Kurbatov and Marion L. Pool and Drs. C. S. Wu and Emilio Segre. This element is a rare earth, with a behavior that is to be expected from a rare earth.

Radioactive element 85, whose isotope has an atomic weight of 211, was made by bombarding bismuth with 32,000,000 electron-volt alpha particles. Its general behavior is that of a metal, with little resemblance to the other halogens. Drs. Dale R. Corson, K. R. Mackenzie and Emilio Segre investigated its properties.

A radioactive form of element 87, given the name AcK, has been discovered resulting from the decay of actinium. This isotope discovered by Dr. M. Perey has a mass of 223 and lives but a short time. It decays with negative beta particle emission with a half life of 20 minutes. As was expected, it behaves like a heavy alkali metal.

[Earlier reports of the discovery of these elements were made, in the case of 43, named masurium, in 1925, and element 61, named illinium, in 1926, while 85, called alabamine, and 87, called virginium, were announced in 1931. The chemical literature records several earlier claims of finding some of these elements.]

TRACERS MOST IMPORTANT TOOL SINCE MICROSCOPE

Unlimited possibilities for the application of radioactive tracers to scientific problems and to the treatment of disease were foreseen by Dr. Seaborg.

"Many biologists believe that artificial radioactivity has given biology and medicine what is probably the most useful tool for research since the discovery of the microscope," he said, "because almost all the elements and compounds in a biological system can be tagged and their course through living systems studied."

The chain reacting pile used in the production of plutonium for the manufacture of atomic bombs produces large amounts of neutrons of high intensity and as a result it is possible to produce in large quantity isotopes that are used as "tracers."

One of the most useful of the isotopes thus made is radioactive carbon 14, which has a half-life of some thousands of years. Since carbon is so important in the living world, being able to trace a carbon atom through life processes with apparatus that detects its explosive decaying will provide new information on what happens during metabolic changes.

Radioactive triple-weight hydrogen, atomic weight 3, can now be produced by means of the intense neutron sources in the atomic bomb manufacture. It has a half-life of 30 years and can be used effectively to label hydrogen in organic compounds both in chemical processes and in either normal or pathologic life processes.

Radiophosphorus, radiosulfur and radioiodine are among the other radioactive isotopes that, according to Dr. Seaborg, will offer many opportunities for important research.

One interesting finding is that radiophosphorus accumulates in leukemic tissues, thus opening the possibility that it can be used in the treatment of this disease. Radiophosphorus would thus bombard the diseased tissues with beta rays to a greater degree.

The study of cancer is another possible use of tracers. As in the case of leukemia, Dr. Seaborg explained, "there is the therapeutic possibility of effecting the selective deposition of the radioactive material in the cancerous tissue."

"It has occurred to many investigators," he reported, "that it should be possible in the future to synthesize some compound containing a radioactive substance, this compound having the property of being selectively absorbed by the cancerous tissue so that the radioactive rays can act directly at this spot without giving harmful effects on the body's healthy tissue."

Tagging of bacteria with radioactive carbon 14 is a possibility, Dr. Seaborg said. A beginning has been made by tagging the tuberculosis bacillus with radioactive phosphorus but the experiments have not yet been completed.

Radioactive iodine has been used in the treatment of patients suffering from hyperthyroidism by Drs. J. G. Hamilton and M. H. Soley, while Dr. J. H. Lawrence has been successful in the application of radioactive phosphorus to the temporary control of polycythema vera.

Industry will also benefit from radioactive materials resulting from the atomic bomb researches and the manufacture of plutonium, Dr. Seaborg predicted. Radioactive indicators will be used to follow the course of products and impurities in large industrial processes.

As an example of one chemical problem that could be studied with carbon 14 he cited the mechanism of catalytic cracking, isomerization and alkylation of hydrocarbons which are of profound interest to the oil industry.

Radioactive tracers may also help solve fundamental problems in genetics, such as the connection between the genes in the chromosomes that cause brown eyes and the actual deposition of the pigment in the cells of the iris.

THIOURACIL REPRINTS

A limited number of reprints of the paper, "Clinical Toxicity of Thiouracil," are still available. This report to the Council on Pharmacy and Chemistry of the American Medical Association is a "must" for every physician who may prescribe the drug. Following publication of the material for pharmacists in the February issue of This Journal (7:62, 1946), a great many pharmacists have requested reprints to distribute to their physicians. Send your order to the Journal, 2215 Constitution Ave., Washington 7, D. C. Twenty-five cents for each ten copies.

NNR

PRODUCTS RECENTLY ACCEPTED BY THE A. M. A. COUNCIL ON PHARMACY AND CHEMISTRY

Council descriptions of drug products are published regularly in This Journal as they are accepted. Rules upon which the Council bases its action appeared in the November, 1945, issue (6:329, 1945) and may be secured in pamphlet form upon request to the Secretary, Council on Pharmacy and Chemistry, American Medical Association, 535 N. Dearborn St., Chicago 10.

MERCUHYDRIN SODIUM SOLUTION.—Meralluride Sodium Solution.—A sterile aqueous solution containing in each cubic centimeter approximately 119 mg. of mercuhydrin and 13 mg. of theophylline, adjusted with sodium hydroxide to a *p*H of about 7.5. Each 1 cc. of mercuhydrin sodium solution contains the equivalent of 39 mg. of mercury and 48 mg. of theophylline-U. S. P.

Actions and Uses: Mercuhydrin Sodium Solution is a mercurial diuretic claimed to be indicated in the edema of cardiorenal disease and of nephrosis, ascites of liver disease and other conditions in which a mercurial diuretic may be proposed.

It is claimed to be well tolerated systematically and significantly free from reaction at the site of injection when given intramuscularly. It is rapidly absorbed following intramuscular injection. It also is administered by intravenous injection.

The drug is contraindicated in acute nephritis and chronic kidney disease in which well-defined tubular and glomerular changes are present. Since mercury is known to give rise in sensitive patients to side effects such as stomatitis, gastric disturbance, vertigo, febrile reaction and cutaneous eruptions, it is suggested that initial tests and careful regulation of dosage be followed when mercurial diuretics are used. During prolonged administration the urine should be examined periodically for albumin casts and blood cells.

Dosage.—Depending on the condition of the patient and route and the frequency of administration, the usual dose of Mercuhydrin Sodium Solution is from 1 cc. to 2 cc. In view of occasional cases of idiosyncrasy to mercurials, the initial dose could be 0.5 cc. or less. Subsequent injections may be given twice weekly, as indicated by the condition of the patient. One investigator has recommended smaller doses repeated at shorter intervals and emphasizes the importance of observing daily water balance instead of weekly observations.

Tests and Standards.—

Mercuhydrin sodium solution is clear, colorless to pale yellow and odorless and possesses a bitter taste. The *p*H

of the solution is between 7.4 and 7.6 at 25 C. Mercuhydrin sodium solution should be protected from light.

Five cubic centimeters of mercuhydrin sodium solution responds to tests for the presence of mercury, allylsuccinylurea and theophylline given under Mercuhydrin-N. N. R. Evaporate 1 cc. of mercuhydrin sodium solution to dryness in a tared porcelain dish and ignite: the residue responds to tests for sodium.

To 5 cc. of mercuhydrin sodium solution add 0.5 cc. of sodium acetate solution and 0.3 cc. of diluted acetic acid; dilute to 10 cc. with water and divide the solution into two portions. Add to one portion 0.2 cc. of sodium sulfide solution and compare with the other portion: only a very faint difference in coloration of the test solution is noticeable immediately.

Determine the mercury content of 2 cc. of mercuhydrin sodium solution, accurately measured, by the method given under Mercuhydrin-N. N. R.: the amount of mercury found is not less than 95 per cent nor more than 105 per cent of 39 mg. per cubic centimeter.

Determine the theophylline content of 5 cc. of mercuhydrin sodium solution, accurately measured, by the method given under Mercuhydrin-N. N. R.: the amount of anhydrous theophylline found is not less than 95 per cent and not more than 105 per cent of 43.6 mg. per cubic centimeter.

LAKESIDE LABORATORIES, INC., MILWAUKEE

Solution Mercuhydrin Sodium: 1 cc. and 2 cc. ampuls.

MANNITOL HEXANITRATE (See New and Nonofficial Remedies, 1945, p. 334).

The following dosage form has been accepted:

WILLIAM H. RORER, INC., PHILADELPHIA

Tablets Mannitol Hexanitrate: 32 mg.

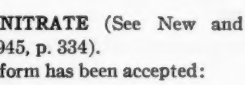
PENICILLIN (See New and Nonofficial Remedies, 1945, p. 214).

The following additional dosage form has been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Penicillin Sodium Salt: 200,000 Oxford Unit vials.

TUAMINE.—Racemic 2-aminoheptane.—Racemic β-aminoheptane.—$C_7H_{17}N$.—M. W. 115.22. The structural formula of 2-aminoheptane is:



Actions and Uses.—Tuamine produces vasoconstrictive action and is a member of the group of compounds known as sympathomimetic amines. Inhalation of the vapors provides an effective method of treatment for acute rhinologic conditions and is of added usefulness when prolonged and repeated medication is necessary (*see also general monograph on sympathomimetic amines*). It should be used with caution by those who have cardiovascular disease. It is made available in an "inhaler" type of device.

Dosage.—One or two gentle inhalations through each nostril, repeated at hourly intervals if needed.

Tests and Standards.—

Tuamine occurs as a colorless to pale yellow liquid which boils within the range 138.5–142.5 C. It is sparingly soluble in water but freely soluble in ether, ethanol, chloroform and benzene.

At 25 C. tuamine exhibits a refractive index of from 1.4150 to 1.4200; a specific gravity of from 0.7600 to 0.7660 and a vapor pressure of approximately 4.8 mm. of mercury. The *p*H of a 1 per cent solution of tuamine is 11.45.

Dissolve 1 cc. of tuamine and 1 Gm. of potassium cyanate in 25 cc. of distilled water to which 5 cc. of 10 per cent sulfuric acid has been added. Warm the solution on a steam bath for one hour; cool, filter, wash with distilled water and dry the crystals at 100 C.: the product melts at 127–129 C.

Transfer about 1 cc. of tuamine to a tared weighing bottle and weigh it accurately. Evaporate the tuamine on a steam bath to constant weight: the nonvolatile residue does not exceed 0.2 per cent. Dissolve 1 cc. of tuamine in 10 cc. of liquid petrolatum, U. S. P. XII: no turbidity is produced.

Weigh accurately about 1 Gm. of tuamine and dissolve it in 25 cc. of half-normal sulfuric acid. Titrate the excess acid with half-normal sodium hydroxide, using methyl red as the indicator. Each cubic centimeter of half-normal sulfuric acid is equivalent to 0.0576 Gm. of tuamine: the tuamine content is not less than 99.0 per cent.

ELI LILLY & CO., INDIANAPOLIS

Tuamine Inhaler: Each inhaler contains at the time of packing 2-aminoheptane carbonate, equivalent to 325 mg. of 2-aminoheptane, menthol, 32 mg. and ylang ylang oil, 65 mg.

Tuamine Inhaler.—

Transfer the contents of the inhaler to an ammonia distillation flask and rinse the container with water, adding the washings to the flask. Add 3 cc. of 40 per cent sodium hydroxide and distil the amine into 35 cc. of tenth-normal hydrochloric acid. Complete the determination as directed under tuamine. Each cubic centimeter of tenth-normal hydrochloric acid is equivalent to 0.01152 Gm. of tuamine: the amount of tuamine found is not less than 95 per cent nor more than 105 per cent of the amount claimed to be present at the time of packaging.

EPHEDRINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1945, p. 283).

The following additional dosage form has been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Solution Ephedrine Hydrochloride 5% and Procaine Hydrochloride 1%: 2 cc. ampuls.

PROCAINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1945, p. 97).

The following additional dosage forms have been accepted:

THE WM. S. MERRELL CO., INC., LOESER LABORATORY DIVISION, NEW YORK

Solution Procaine Hydrochloride 1% W/V: 30 cc. and 100 cc. Each cubic centimeter contains procaine hydrochloride 10 mg. in isotonic solution of sodium chloride with chlorobutanol 0.5 per cent as a preservative.

Solution Procaine Hydrochloride 2% W/V: 30 cc. and 100 cc. Each cubic centimeter contains procaine hydrochloride 20 mg. in isotonic solution of sodium chloride with chlorobutanol 0.5 per cent as a preservative.

PERTUSSIS VACCINE COMBINED WITH DIPHTHERIA AND TETANUS TOXOIDS (See THE A. M. A. JOURNAL, Jan. 5, 1946, p. 31).

The following dosage form has been accepted:

SHARP & DOHME, INC., GLENOLDEN, PA.

Diphtheria-Tetanus-Pertussis Antigens Combined, Alum Precipitated: One 3 cc. vial (one 3 dose immunization) and one 10 cc. vial (three dose immunizations). Preserved with phenylmercuric nitrate 1:50,000.

DIETHYLSTILBESTROL (See New and Nonofficial Remedies, 1945, p. 428).

The following dosage forms have been accepted:

CARROLL DUNHAM SMITH PHARMACAL COMPANY, ORANGE, N. J.

Diethylstilbestrol (in Peanut Oil): 1.0 mg. per cc.: 1 cc. ampuls.

Tablets Diethylstilbestrol: 0.1 mg., 0.5 mg., 1.0 mg. and 5.0 mg.

PENICILLIN (See New and Nonofficial Remedies, 1945, p. 214).

The following dosage form has been accepted:

WINTHROP CHEMICAL CO., INC., NEW YORK

Penicillin Calcium: Vials containing 100,000 or 200,000 units.

PERCOMORPH LIVER OIL (See New and Nonofficial Remedies, 1945, p. 637).

The following additional dosage form has been accepted:

MEAD JOHNSON & COMPANY, EVANSVILLE, IND.

Oleum Percomorphum with Other Fish Liver Oils and Viosterol: 10 cc. bottles.

MANNITOL HEXANITRATE (See New and Nonofficial Remedies, 1945, p. 334).

The following dosage form has been accepted:

E. R. SQUIBB & SONS, NEW YORK

Tablets Mannitol Hexanitrate: 16 mg. and 32 mg.

GOLD SODIUM THIOSULFATE (See New and Nonofficial Remedies, 1945, p. 175).

The following additional dosage form has been accepted:

MERCK & CO., INC., RAHWAY, N. J.

Gold Sodium Thiosulfate: 75 mg. bottles.

THIAMINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1945, p. 610).

The following additional dosage form has been accepted:

MEAD JOHNSON & COMPANY, EVANSVILLE, IND.

Tablets Thiamine Hydrochloride: 5 mg.

BACTERIAL VACCINE MADE FROM HEMOPHILUS PERTUSSIS (See THE A. M. A. JOURNAL, Jan. 5, 1946, p. 31).

The following dosage form has been accepted:
PARKE, DAVIS & CO., DETROIT

Pertussis Vaccine, Immunizing (Sauer): 6 cc. and 24 cc. vials. 15,000 million H. Pertussis per cubic centimeter.

RIBOFLAVIN (See New and Nonofficial Remedies, 1945, p. 614).

The following additional dosage form has been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Tablets Riboflavin: 10 mg.

SULFATHIAZOLE SODIUM (See New and Nonofficial Remedies, 1945, p. 213).

The following dosage form has been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Sterile Sodium Sulfathiazole Anhydrous: 5 Gm. ampuls.

ASCORBIC ACID (See New and Nonofficial Remedies, 1945, p. 622).

The following dosage form has been accepted:

MCKESSON & ROBBINS, INC., BRIDGEPORT, CONN.

Tablets Ascorbic Acid: 25 mg., 50 mg. and 100 mg.

A REPORT OF THE COUNCIL:

CHLOROQUINE, NONPROPRIETARY NAME FOR SN 7618

The Board for Coordination of Malarial Studies has requested the Council on Pharmacy and Chemistry to give consideration to the recommendation of a nonproprietary name for a new antimalarial compound known so far as SN 7618. It has the chemical structure of 7 chloro-4 (4-diethylamino-1-methylbutylamino) quinoline. Chloroquine has been proposed as the nonproprietary name.

The Council has been informed that the compound is covered by a German patent which has been assigned to the Winthrop Chemical Company, although all of the work in developing its antimalarial properties and usage has been done by the government contractors working under the Office of Scientific Research and Development. The Council has been cognizant of the value of the cooperative studies which have been undertaken during the war. It feels that every effort should be made to encourage this and similar work and to make available as soon as seems expedient the results of the studies so that they may be applied for the good of humanity. The adoption and use of appropriate nonproprietary names for truly useful drugs would seem to be a step in this direction.

The Council has voted to recognize Chloroquine as a nonproprietary name for the antimalarial substance sometimes described as SN 7618.

The Hospital Pharmacist

INSTITUTE ON HOSPITAL PHARMACY

by DON E. FRANCKE

CHAIRMAN, AMERICAN SOCIETY OF HOSPITAL PHARMACISTS

JULY 15 TO 19 SET AS DATES FOR ANN ARBOR SESSIONS ON HOSPITAL PRACTICE . . . EXPECTED TO ESTABLISH PRECEDENT FOR FUTURE PROGRAMS

AN Institute on Hospital Pharmacy to be sponsored by the AMERICAN PHARMACEUTICAL ASSOCIATION and the American Hospital Association in cooperation with the American Society of Hospital Pharmacists is to be held at the University Hospital, Ann Arbor, Michigan, July 15 through 19 of this year.

Characteristic of all progressive scientific groups is their propensity to maintain a current knowledge of their own and closely allied fields. One of the more effective devices for advancing professional knowledge is through the medium of institutes which may be considered as "refresher courses" for those actively engaged in a scientific or technical specialty. Of the several educational techniques in use, the institute provides the best medium through which pertinent information can be exchanged by practicing professional men and women in a short time at a small cost. Valuable not only to the individual but also to his institution, the information and expanded viewpoint gained are reflected in the quality of service rendered the hospital.

Especially commendable is the collaboration of the three national associations having in common—although from different viewpoints—a vital interest in the practice of pharmacy in hospitals. Such cooperation will undoubtedly lead to a far greater degree of success than could be attained by any one or two of the organizations working alone.

Significant to the hospital field is this first institute which will provide a medium for exchanging information on the practice of hospital pharmacy and thereby result in better pharmacy service for our institutions. Equally significant is the opportunity offered to the pharmacist himself to develop and improve as a professional man or woman in the field of public health.

The program of the institute has been planned to cover a wide variety of subjects and at the same time to maintain a central theme about which the entire project will revolve. Scheduled to run for five days, the institute will consist of a series of lectures and demonstrations, three to be given in the morning and two in the afternoon, with a panel discussion of the day's program to be held in the evenings.

It is believed that the panel discussions will be among the most valuable parts of the entire series. For it will be at these discussions, characterized by informality and a spirit of free exchange of questions and ideas, that much of the more theoretical aspects of the program will be crystallized and made applicable to everyday situations. A site for the meetings has been selected that provides a schoolroom arrangement, encourages informality and invites audience participation.

Planned to meet the needs of pharmacists in small as well as large hospitals the program will cover hospital pharmacy policy and administration, the preparation of parenteral medication, pharmaceutical manufacturing and its application in hospitals of various sizes, teaching materia medica to nurses, group hospitalization plans and how they may affect pharmacy, and recent trends and developments in the field of new drugs. Scheduled for the first evening is a social period at which old acquaintances will be renewed and new ones developed. The final session will be a dinner at which certificates will be awarded to those attending all scheduled meetings.

The faculty will consist of seven hospital pharmacists and an approximately equal number of lecturers from allied fields. The complete program and faculty will be announced soon, when details are completed.

As agreed by representatives of the participating organizations at a recent meeting in Chicago, Dr. Hugo V. Hullerman, secretary of the Council on Professional Practice of the American Hospital Association, 18 East Division St., Chicago 10, will approve applications for attendance at the institute in conformity with the established eligibility requirements. The applicant must be a hospital pharmacist and he must be a member of the American Society of Hospital Pharmacists, which automatically requires him to be a member of the AMERICAN PHARMACEUTICAL ASSOCIATION, or his institution must be a member of the American Hospital Association.

The fee for the institute will be $25. All room and meal expense, except for final dinner and social period, will be the responsibility of each enrollee.

Reservations for single, or twin-bed rooms at the dormitory reserved for those attending the institute may be made through Dr. Hullerman. An application blank and program will be mailed each member of the American Society of Hospital Pharmacists; others who are eligible may obtain them from Dr. Hullerman or Dr. R. P. Fischelis, secretary of the AMERICAN PHARMACEUTICAL ASSOCIATION.

Once the value of institutes on hospital pharmacy has been established by experience it is expected that annual meetings of this type will be held, widely distributed over the land to effect a strong, united, well-trained, well-informed corps of hospital pharmacists to function in our nation's hospitals.

A. S. H. P. OFFERS AWARDS FOR ESSAYS ON HOSPITAL PHARMACY

Unpublished manuscripts on hospital pharmacy and allied subjects will compete for cash awards in a contest announced by the American Society of Hospital Pharmacists.

The scope of eligible subject matter is broad. Contributions may deal with suggested long-range policies and plans for hospital pharmacy discussed from the standpoint of the individual institution, local or state activity, national plans, educational programs, legislative objectives or any other theme on hospital pharmacy the writer may select.

For the best entry $50 will be awarded, with $25 going to each of the two next best essays.

Entries should be limited to 5000 words, be typewritten in English, prepared in mansucript form, submitted in triplicate and mailed for receipt not later than July 1, 1946. Entries should be sent to the editor of the *Bulletin of the American Society of Hospital Pharmacists*, 1313 Ann St., Ann Arbor, Mich. Entries become the property of the Society and will not be returned.

OHIO HOSPITAL PHARMACISTS ELECT NEW OFFICERS

At the recent meeting of the Ohio Hospital Association in Columbus, the Ohio Society of Hospital Pharmacists elected John Miller, chief pharmacist of Aultman Hospital, as its president. Other hospital pharmacy officers named were: Roy F. Wise of Lima Memorial Hospital, president; Thomas Lolli of Cleveland Clinic, vice-president; Sister Jean Marie of St. Elizabeth's Hospital (Youngstown), treasurer; and Rose Lenga of Riverside Hospital (Toledo), corresponding secretary.

Lowell Ruff of Ohio State University is president-elect.

MINIMUM LIST OF BOOKS FOR A HOSPITAL PHARMACY

by EDWARD J. IRELAND

NEW ORLEANS COLLEGE OF PHARMACY, LOYOLA UNIVERSITY

SEVERAL years ago I reviewed a list of books which comprised the 1829 catalog of the library at the Massachusetts College of Pharmacy. Inasmuch as some of the books were in my own library I knew their content and from a scientific point of view it was clear that our modern pharmaceutical literature had developed remarkably since those early days in 1829.

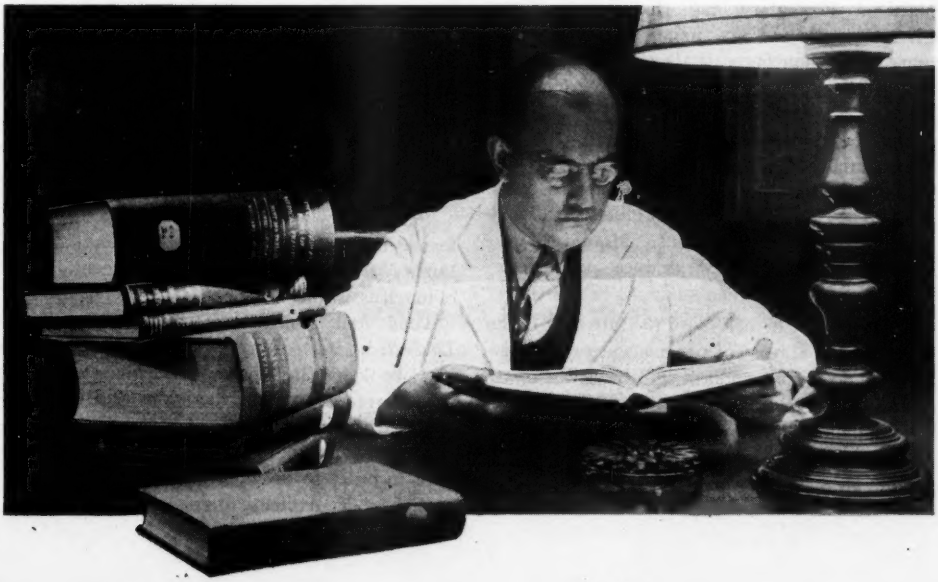
I found myself sympathizing with the early pharmacists and students who had such a meager selection of professional literature. Then I realized that the list could not have been any different. Modern chemistry was still in its infancy. Physics was only found in volumes dealing with natural philosophy. Bacteriology was not a science and there was a paucity of literature in all the other sciences as well. Pharmacists were most interested in crude drugs; and their pharmacology and therapeutic literature, if judged by modern standards, was decidedly elementary. A cursory glance at any of these books reveals their elementary nature. But the pharmacist of that period purchased and used them.

When the chairman of this program* invited me to present this paper I wondered what students and pharmacists of future generations will say when, browsing through old journals, they come across these suggestions. I shall feel perturbed, wherever I am at that time, to hear comments such as: "Why a minimum list of books for a hospital pharmacy? Were the hospital pharmacists unaware that a reference library which is not increasing in the number of useful books is thereby becoming obsolete? Surely hospital pharmacists were not satisfied with a minimum list." However, since I have visited a large number of our hospital pharmacies I am aware that a minimum list is necessary. Some may already have gone beyond what I consider to be a minimum list. Others need such a list to emphasize the importance and value of adequate reference material or to aid them in locating books to meet their needs.

MacEachern† has pointed out that the hospital should maintain an adequate pharmaceutical library. He specified the U. S. Pharmacopœia, National Formulary, New and Nonofficial Remedies, U. S. Dispensatory and reference

* Presented to the American Society of Hospital Pharmacists, 1944 meeting, Cleveland, O.

† *Modern Hospital*, 52: 102, 1939.



works on inorganic and quantitative chemistry, pharmacology, toxicology, bacteriology and a medical dictionary.

In his brief references to the library, MacEachern left the selection to the pharmacist. If the pharmacist is not personally interested in developing the library for the pharmacy, however, all the lists ever published will not help. If the chief pharmacist develops such an interest himself, and does not delegate this responsibility to someone else, he will become very discriminating in selecting purchases.

The purchase of books and journals for the pharmacy library should be directed with special attention to the particular problems which present themselves to the staff and to the type of service which the hospital pharmacy offers. You would not expect the same problems in a maternity hospital as in an ear, eye, nose and throat hospital or a skin and cancer clinic. Hence the literature in the library will be selected to aid the pharmacist in counseling the practitioner as to the best type of medication or to furnish adequate information in order that the pharmacist may overcome his own problems.

Here we shall discuss briefly volumes which I have found particularly significant and useful. Others might name comparable or related works to meet better their individual needs.

Most state pharmacy laws require the latest editions of the United States Pharmacopœia and the National Formulary because these two books contain the official standards for official medicaments. Hospital pharmacists who purchase the United States Dispensatory because they feel that this well-known book contains both the National Formulary and the United States Pharmacopœia are practicing false economy in more ways than one. If they wish the United States Dispensatory they should purchase it, but they should do so only after the United States Pharmacopœia and the National Formulary have been purchased. The latter two books carry more authority and prestige if you are called upon to discuss standards or formulas with members of the allied professions. Moreover, they include much data not reproduced in the Dispensatory.

It should not be necessary to state that if you wish to keep abreast of pharmaceutical progress in the official compendia it will be necessary to obtain the interim revisions of the U. S. P. and the supplements to the N. F. The former can be obtained from the U. S. P. Committee of Revision, 4738 Kingsessing Ave., Philadelphia 43, the latter from the Committee on National Formulary, 2215 Constitution Ave., N. W., Washington 7, D. C.

Anyone who has ever used the A. PH. A.'s *Pharmaceutical Recipe Book* will probably want all of the editions, of which there are three. A great many of the formulas have been changed as the editions were revised.

Dorland's *Medical Dictionary* is, in my opinion, the most complete and best illustrated.

One of the most useful little books will be Lange's *Handbook of Chemistry*. It is packed with very valuable chemical information for the hospital pharmacist.

Although Beckman's *Treatment in General Practice* is not directly pharmaceutical, there are so many suggestions in this book, and it is so widely used by physicians that it should be one of the books on the hospital pharmacy library shelf.

Those who have Gutman's *Modern Drug Encyclopedia and Therapeutic Guide* are well aware of its value, yet, to keep abreast of the field of proprietaries, one should subscribe to the quarterly known as *Modern Drugs* issued by the publishers of the encyclopedia at $1 per year.

You will need pharmacology texts, the two most popular being Goodman and Gilman's *Pharmacological Basis of Therapeutics* and Sollmann's *A Manual of Pharmacology*. Both of these texts are good but many prefer the latter after learning to use it.

Best and Taylor's *Physiological Basis of Medical Practice* is the recognized text in physiology today, but if other texts are used in your locality it would be well to study or purchase the book which is the standard text in your state medical school.

Recently an excellent text in organic chemistry was published and you will be proud and happy to have it in your library. It is Fieser's new contribution and will prove very useful.

Pharmacists throughout the country have found the two Merck books valuable additions to their libraries: the *Merck Index*, 5th edition and the *Merck Manual*, 7th edition.

Pharmacists who are frequently asked for information concerning nutrition will find McCollum's *Newer Knowledge of Nutrition* accurate and of much assistance.

Todd and Sanford's *Clinical Diagnosis by Laboratory Methods* has been recognized as an ideal book for the laboratory technician. Since the pharmacy prepares the stains and the solutions for these technicians, it is necessary for the pharmacist to know the procedures which are used in order to provide a better service to the pathology department.

Remington's Practice of Pharmacy will be a valuable addition to your library. It is the oldest revised treatise on the practice of pharmacy and still proves most serviceable.

Many pharmacists have been expending time and energy looking for an authoritative text on alkaloids. Henry's *Plant Alkaloids* is the book for which they have been searching.

Woodman's *Food Analysis* will be of much assistance when you are looking for explanations and chemical procedures on fats, oils, milk, coloring agents, and extracts. Of course this book will never substitute for the authoritative three-volume work of Lewkowitsch or the newer, more comprehensive book by Morris B. Jacobs.

Anyone who has ever worked with certified dyes should thank the Conns. The fourth edition of their book, *Biological Stains*, will be welcomed by any pharmacist who desires to know more about dyes and stains.

While Everett's *Medical Biochemistry* is not as comprehensive as some of the older texts which dealt with physiological chemistry or biochemistry, this new text is being used in a large number of medical schools in this country and every hospital pharmacist should be familiar with it.

New and Nonofficial Remedies, better known as "N. N. R.," is published annually. Since physicians will be asking for Council-accepted remedies it is good pharmaceutical practice to have each volume of the N. N. R. because of frequent deletions and additions.

Incompatibilities by Nichols and Ruddiman will sometimes assist you greatly in explaining incompatabilities which arise. It is worth the space in a small library.

Frequently, the hospital pharmacist will have volumetric analysis problems. Kolthoff-Furman will furnish you with the information to solve the problem.

Finally, I believe that Stitt, Clough and Clough's volume on *Practical Bacteriology, Haematology and Parasitology* will be appreciated in any hospital pharmacy library.

To this selection of books, listed below, I have added a list of journals which I have found especially useful. Space will not permit me to discuss each of these sources of important information, but the publisher will be pleased to send a sample copy in order to have you read and evaluate its contents.

A list of house organs is included, which you will receive without charge by writing to the respective publishers. Many times you will find excellent bibliographies in these publications, and you can subsequently obtain the original article if desired.

In conclusion, I should like to recommend the advice of one of pharmacy's outstanding scientists, the late John Uri Lloyd of Cincinnati, who stated that the best way to build a good library is to "purchase the book you want and forget how much you paid for it."

Those of you who expand your hospital pharmacy library will not only be helping yourselves and your institution but elevating the profession and building a heritage for those who follow.

Books

UNITED STATES PHARMACOPŒIA XII and interim revisions.

NATIONAL FORMULARY VII and supplements (also the bimonthly BULLETIN OF THE NATIONAL FORMULARY COMMITTEE).

UNITED STATES DISPENSATORY, 23rd edition, J. B. Lippincott & Co., Philadelphia.

PHARMACEUTICAL RECIPE BOOK III (also I and II).

Dorland—MEDICAL DICTIONARY, W. B. Saunders Co., Philadelphia.

Lange's HANDBOOK OF CHEMISTRY, 1944, Handbook Publishers, Sandusky, O.

Beckman's TREATMENT IN GENERAL PRACTICE, W. B. Saunders Co., Philadelphia.

Zinsser, Bayne-Jones—TEXTBOOK OF BACTERIOLOGY, Appleton Century Co., New York.

Gutman's MODERN DRUG ENCYCLOPEDIA AND THERAPEUTIC GUIDE, 2nd edition, New Modern Drugs, 49 W. 45th St., New York 19.

Goodman and Gilman—PHARMACOLOGICAL BASIS OF THERAPEUTICS, Macmillan Co., New York.

Sollmann's MANUAL OF PHARMACOLOGY, W. B. Saunders Co., Philadelphia.

Best and Taylor—PHYSIOLOGICAL BASIS OF MEDICAL PRACTICE, 3rd edition, Williams & Wilkins Co., Baltimore, Md.

Fieser and Fieser, ORGANIC CHEMISTRY, D. C. Heath Co., Boston.

MERCK INDEX, Merck and Co., Rahway, N. J.

MERCK MANUAL, Merck and Co., Rayway, N. J.

McCollum, Orent-Keiles Day—THE NEWER KNOWLEDGE OF NUTRITION, Macmillan Co., New York.

Todd & Sanford's CLINICAL DIAGNOSIS BY LABORATORY METHODS, 10th edition (1939), W. B. Saunders Co., Philadelphia.

Remington's PRACTICE OF PHARMACY (in revision), J. B. Lippincott, Philadelphia.

T. A. Henry's PLANT ALKALOIDS, 3rd edition (1939), Blakiston Co., Philadelphia.

Woodman—FOOD ANALYSIS, 4th edition (1941), McGraw-Hill Co., New York.

Conn—BIOLOGICAL STAINS, 4th edition, W. F. Humphrey Press, Inc., Geneva, N. Y.

Everett—MEDICAL BIOCHEMISTRY, 1942, Paul B. Hoeber Publisher, New York.

NEW AND NONOFFICIAL REMEDIES, American Medical Association, 535 N. Dearborn St., Chicago 10.

Ruddiman and Nichols—INCOMPATIBILITIES IN PRESCRIPTIONS, 6th edition, John Wiley & Sons, New York.

Kolthoff-Furman—VOLUMETRIC ANALYSIS I & II, John Wiley & Sons, New York.

Stitt-Clough and Clough—PRACTICAL BACTERIOLOGY, HEMATOLOGY and PARASITOLOGY, 9th edition Blakiston Co., Philadelphia, Pa.

Journals

Journal of the American Pharmaceutical Association, *both* Scientific and Practical Pharmacy Editions, 2215 Constitution Ave., Washington 7, D. C.

Drug and Cosmetic Industry, 101 West 31st St., New York.

Oil, Paint & Drug Reporter, Schnell Publishing Co., 59 John St. New York 7.

Stain Technology, Biotech Publishing Co., Geneva, N. Y.

Journal of Pharmacology and Experimental Therapeutics, Williams & Wilkins, Mt. Royal and Guilford Ave., Baltimore 2, Md.

American Perfumer and Essential Oil Review, Chestnut & 56th Sts., Philadelphia 39.

American Journal of Pharmacy, Philadelphia College of Pharmacy and Science, 43rd at Kingsessing and Woodland Aves., Philadelphia.

Journal of Laboratory and Clinical Medicine, C. V. Mosby Co., 3523 Pine Blvd., St. Louis.

American Journal of Pharmaceutical Education, American Association of Colleges of Pharmacy, Univ. of Nebraska, Lincoln, Neb.

American Professional Pharmacist, Romaine Pierson Publishers, 67 Wall St., New York City.

N. A. R. D. Journal, 205 West Wacker Drive, Chicago 8.

Journal of the American Medical Association, 535 N. Dearborn St., Chicago 10.

House Organs

Ciba Symposia, LaFayette Park, Summit, N. J.

Scope, Upjohn Co., Kalamazoo, Mich.

Seminar, Sharp and Dohme, Philadelphia.

Modern Pharmacy, Parke Davis & Co., Detroit.

What's New, Abbott Laboratories, North Chicago, Ill.

Therapeutic Notes, Parke Davis & Co., Detroit.

Tile and Till, Eli Lilly Co., Indianapolis, Ind.

Physicians' Bulletin, Eli Lilly Co., Indianapolis, Ind.

Hospital Topics & Buyer, 43 E. Ohio St., Chicago, 11.

Medical Economics, Rutherford, N. J.

Bulletin of Lederle Laboratories, 30 Rockefeller Plaza, New York City 20.

Squibb Memoranda, E. R. Squibb & Sons, 745 Fifth Ave., New York.

Givaudanian, Givaudan-Delawanna, 330 West 42nd St., New York 18.

U. S. Alcohol News, 60 E. 42nd St., New York.

Victor News, 2012 Jackson Blvd., Chicago.

Additional Books

PHARMACY

Emil J. Belanger—DRUG AND SPECIALTY FORMULARY, Chemical Publishing Co., Brooklyn, N. Y.

PHARMACEUTICAL FORMULAS (2 volumes), Chemist and Druggist, 28 Essex Street, Strand, London W. C. 2, England.

Gershenfeld's BIOLOGICAL PRODUCTS, Romaine Pierson Publishers, New York.

DeNavarre—CHEMISTRY AND MANUFACTURE OF COSMETICS, 1941, D. Van Nostrand, New York.

Spease—PHARMACEUTICAL MATHEMATICS, 2nd edition, McGraw-Hill, New York.

Husa—PHARMACEUTICAL DISPENSING, 2nd edition, Husa Brothers, Publishers, Iowa City, Ia.

Fischelis-Arny—PRINCIPLES OF PHARMACY, 4th edition, W. B. Saunders, Philadelphia.

Hager's HANDBUCK DER PHARMACEUTISCHE PRAXIS, 2 volumes (German), G. E. Stechert and Co., 31 E. 10th St., New York 3.

Martindale's PHARMACOPŒIA (vols. I and II), Pharmaceutical Press, 23 Bloomsbury Square, London W. C. 1, England.

ART OF DISPENSING, Chemist and Druggist, 28 Essex St., Strand, London W. C. 2, England.

Powers and Crossen—SCOVILLE'S ART OF COMPOUNDING, 7th edition, Blakiston Co., Philadelphia.

Kremers and Urdang—HISTORY OF PHARMACY, 1940, J. B. Lippincott Co., Philadelphia.

Stevens' ARITHMETIC OF PHARMACY, D. Van Nostrand Co., New York.

Caspari-Kelly—TREATISE OF PHARMACY, 8th edition, Lea and Febiger, Philadelphia 6.

BRITISH PHARMACOPŒIA, 1932, G. E. Stechert and Co., 31 E. 10th St., New York 3.

BRITISH PHARMACEUTICAL CODEX, 1934, G. E. Stechert and Co., 31 E. 10th St., New York 3.

Squire's COMPANION TO THE BRITISH PHARMACOPŒIA, G. E. Stechert and Co., 31 E. 10th St., New York 3.

Bennett and Cocking—SCIENCE AND PRACTICE OF PHARMACY, J. A. Churchill and Co., 40 Gloucester Place, Portman Square, London, England.

Muldoon's PHARMACEUTICAL LATIN, John Wiley & Sons, New York.

DRUG AND COSMETIC REVIEW, 1942, Drug and Cosmetic Industry, New York.

Dorfman's PHARMACEUTICAL LATIN, 1938, Lea and Febiger, Philadelphia 6.

ACCEPTED DENTAL REMEDIES, American Dental Assoc., 222 E. Superior St., Chicago.

Rosenberg's PHARMAKOPENDUM, G. E. Stechert and Co., 31 E. 10th St., New York 3.

C. Rousseau's POLYGLOTA, G. E. Stechert and Co., 31 E. 10th St., New York 3.

Dieterich's NEWES PHARMACEUTIZCHES MANUEL,

G. E. Stechert and Co., 31 E. 10th St., New York 3.

Grah's POLYGLOT PHARMACEUTICAL LEXICON, G. E. Stechert and Co., 31 E. 10th St., New York 3.

PHARMACOLOGY

U. S. Public Health Service—THE PHARMACOLOGY OF THE OPIUM ALKALOIDS, Superintendent of Documents, Washington 25, D. C.

Bastedo's MATERIA MEDICA, PHARMACOLOGY AND THERAPEUTICS, 4th edition, W. B. Saunders, Philadelphia.

Jackson's EXPERIMENTAL PHARMACOLOGY AND MATERIA MEDICA, 2nd edition, C. V. Mosby Co., St. Louis.

Gifford's OCULAR THERAPEUTICS, Lea and Febiger, Philadelphia 6.

McGuigan's APPLIED PHARMACOLOGY, C. V. Mosby and Co., 1940, St. Louis.

Wright's APPLIED PHYSIOLOGY, 7th edition, Oxford Medical Publications, New York.

Ablswede—PRACTICAL TREATMENT OF SKIN DISEASES, 1932, Paul B. Hoebec and Co., New York.

Davidson—SYNOPSIS OF MATERIA MEDICA, TOXICOLOGY AND PHARMACOLOGY, 2nd edition, C. V. Mosby and Co., St. Louis.

Grollman—ESSENTIALS OF ENDOCRINOLOGY, 1941, J. B. Lippincott Co., Philadelphia.

Fabricant—NASAL MEDICATION, A PRACTICAL GUIDE, 1942, Williams & Wilkins, Baltimore, Md.

McGehee and Green—A TEXTBOOK OF DENTAL PHARMACOLOGY, MATERIA DENTICA AND PHARMACO-THERAPEUTICS, 2nd edition, 1941, The Blakiston Company, Philadelphia.

Prinz and Rickert—PHARMACOLOGY AND DENTAL THERAPEUTICS, 8th edition, revised by Edward C. Dobbs, 1941, C. V. Mosby and Co., St. Louis.

Fantus—GENERAL TECHNIC OF MEDICATION, 3rd edition, 1938, American Medical Association, 535 N. Dearborn St., Chicago 10.

Eddy and Dalldorf—THE AVITAMINOSES, 3rd edition, 1944, Williams & Wilkins, Baltimore.

PHARMACOGNOSY

Youngken—TEXTBOOK OF PHARMACOGNOSY, 5th edition, Blakiston and Sons, Philadelphia.

Gathercoal and Wirth—TEXTBOOK OF PHARMACOGNOSY, Lea and Febiger, Philadelphia 6.

Trease—TEXTBOOK OF PHARMACOGNOSY, Wm. Wood and Co., Mt. Royal and Guilford Aves., Baltimore, Md.

Lloyd's PHARMACOPŒIAL HISTORY OF OFFICIAL DRUGS.

Youngken—TEXTBOOK OF PHARMACEUTICAL BOTANY, 5th edition, Blakiston and Sons, Philadelphia.

Chamot and Mason—HANDBOOK OF CHEMICAL MICROSCOPY, vol. I, 2nd edition, John Wiley & Sons, New York.

Flueckiger and Hanburg—PHARMACOGRAPHIA, 1872, G. E. Stechert and Co., New York 3.

Greenish—MICROSCOPIC EXAMINATION OF FOODS AND DRUGS, Blakiston and Sons, Philadelphia.

Schneider—MICROANALYSIS OF POWDERED VEGETABLE DRUGS, Blakiston and Sons, Philadelphia.

Wodehouse—POLLEN GRAINS, 1935, McGraw-Hill Publishers, New York.

CHEMISTRY

Morris B. Jacobs—CHEMISTRY AND TECHNOLOGY OF FOOD AND FOOD PRODUCTS, Vol. 1 (1944). Interscience Publishing Inc., New York.

Jenkins and Hartung—CHEMISTRY OF ORGANIC MEDICINAL PRODUCTS, 1943, John E. Swift Co., Inc., St. Louis.

Bentley and Drivei—TEXTBOOK OF PHARMACEUTICAL CHEMISTRY, 3rd edition, 1937, Oxford Press, Amen House, Warwick Sq., London E. C. 4, England.

Jenkins and DuMez—QUANTITATIVE PHARMACEUTICAL CHEMISTRY, 1937, McGraw-Hill, New York.

Sherman—CHEMISTRY OF FOOD AND NUTRITION, 1937, Macmillan Co., New York.

Hawk and Bergheim—PRACTICAL PHYSIOLOGICAL CHEMISTRY, 1937, 11th edition, Blakiston and Sons, Philadelphia.

Mathews—PHYSIOLOGICAL CHEMISTRY, 6th edition, 1939, Wm. Wood and Co., Mt. Royal and Guilford Aves., Baltimore, Md.

Whitmore—ORGANIC CHEMISTRY, 1937, D. Van Nostrand Co., New York.

Rogers—INORGANIC PHARMACEUTICAL CHEMISTRY, 1943, Lea and Febiger, Philadelphia 6.

Findlay—RECENT ADVANCES IN CHEMOTHERAPY, 1939, Blakiston and Sons, Philadelphia.

Fischl-Schlossberger—HANDBOOK OF CHEMOTHERAPY, 1933, Roebuck.

Gildemeister and Hoffman—VOLATILE OILS, 3 vols., 1916, John Wiley & Sons, New York.

Finnemore—ESSENTIAL OILS, 1926, D. Van Nostrand Co., New York

Simonsen—ESSENTIAL OILS, 1935, Oxford Press, Amen House, Warwick Sq., London E. C. 4, England.

Lewkowitsch—CHEMICAL TECHNOLOGY AND ANALYSIS OF OILS, FATS AND WAXES, 6th edition, 1938, 3 vols., Macmillan, New York.

Peters and Van Slyke—QUANTITATIVE CLINICAL CHEMISTRY, 1932, Wm. Wood and Co., Mt. Royal and Guilford Aves., Baltimore, Md.

CHEMICAL ENGINEERING CATALOGUE, Reinhold Publishing Corp., 330 W. 42nd St., New York 18.

Hackh—CHEMICAL DICTIONARY, 1937, Blakiston and Sons, Philadelphia.

Van Rÿn—DIE GLYKOSIDE, Gebrüder Borntraeger, Berlin.

CHEMISTRY OF OPIUM ALKALOIDS, U. S. Treasury Department, Supplement Bulletin, No. 103.

M.S. IN HOSPITAL PHARMACY

A course leading to the Master of Science degree in hospital pharmacy has been established at Purdue University School of Pharmacy.

Science News Capsules

APPENDICITIS fatalities dropped by two-fifths between 1940 and 1943, the last year for which statistics are available. Credit for the achievement goes to the use of chemotherapy in cases complicated by peritonitis and to the educational campaign which warned the public against delay in seeking medical advice and against use of laxatives in case of abdominal pain.

UREA PEROXIDE dissolved in anhydrous glycerol has been used successfully by Dr. Ethan A. Brown of Boston and his colleagues as an antiseptic for wounds, skin infections and the like. Action of the new antiseptic, called Thenardol, is due to the liberation of hydrogen peroxide but does not have the latter's disadvantages of instability and transient action *in situ*.

POWER DIVE TESTS to learn just how fast the Lockheed P-80 can fly will be made by the Army, probably in June. A pilotless plane will be guided by remote control and a television camera will provide a constant picture of the instrument panel.

TELEVISION IMAGES with three times the clarity and brilliance heretofore achieved are reported possible from a new coating applied inside the face of the cathode ray tube. Made of aluminum, the coating is 1500 times thinner than a sheet of paper.

CAROTENE CONVERSION into vitamin A in the animal body is only one-sixth as efficient as has been assumed, guinea pig experiments at the University of California indicate. This may mean that less reliance can be placed on vegetables, such as carrots and lettuce, as a source of this vitamin.

ELECTRIC CAUTERY may now be used in chest surgery through elimination of explosive anesthetics, such as ether and cyclopropane. At the University of California Medical School, curare is being used to paralyze the respiratory muscles, so that breathing can be controlled, while nitrous oxide produces the necessary anesthesia. Previously, this double action could be achieved only by the explosive anesthetics.

PSYCHOLOGIC MALADJUSTMENT affects a majority of patients being treated for supposed physical ailments in medical office practice, according to Dr. Juergen Ruesch, research psychiatrist of the University of California Medical School. This conclusion was drawn from a study made for the Office of Scientific Research and Development. "These patients fall into the borderland between health and disease," says Dr. Ruesch, "and because of the unfortunate division between physical and psychological medicine, little scientific attention has been paid to their problem. Frustrated and dissatisfied, they represent a social problem of considerable magnitude." Since there are too few trained psychiatrists to cope with such a huge number of such patients, there appears to be little hope for an early solution to the problem. Hope lies in prevention, which involves long-range educational policies.

COAL, AIR AND WATER were the substances upon which wartime Germany was largely dependent. Synthesized from these three fundamental raw materials were about 85% of the Nazi war machine's aviation fuel and motor gasoline, all but a fraction of 1% of its rubber, all of its nitric acid for explosives and 99% of its methanol, also used in explosives.

HEMOGLOBIN PRODUCTION may be speeded after severe hemorrhage by doses of two vitamin-chemicals: the *L. casei* factor, which is a form of folic acid, and β-pyracin, which is derived from pyridoxine. Promising results were obtained in experiments on hens conducted at Cornell University (*Science*, 103: 303, 1946).

U. S. AGAR production rose during the war from 24,000 pounds annually in 1940 to a current figure of 200,000 pounds annually. Formerly, such seaweed products had been imported from Japan and other countries.

THE "WALKIE-LOOKIE" may evolve from wartime, airborne television as the equivalent of the "walkie-talkie" voice instrument. Peacetime adaptation of the small television camera equipment is foreseen for such uses as (1) literal eyewitness news coverage, (2) television test pilots in experimental aircraft to eliminate the risk of life, (3) sight transmission of weather and traffic conditions to air pilots and marine navigators, (4) television eyes for industry and science that will present pictures of operations or experiments to distant observers, and (5) television exploration of hazardous regions with remote-controlled aircraft.

AMERICA CANNOT DEMOBILIZE OLD AGE, says Dr. George Lawton, director of the Old Age Counselling Center in New York. Jobs suited to their abilities rather than public financial help is the right answer to the problems of older people, he contends, pointing to clinical experience which indicates that, other things being equal, a man working

at a job he likes and can handle will live longer than a man who retires.

DRUGS that fluoresce can be traced by this property in their course through the body. Experiments have been conducted (*Science*, 103: 340, 1946) by injecting quitenine subcutaneously into toadfish, then exposing the organs to ultraviolet radiation after dissection. Dr. Charles H. Taft of the University of Texas Medical Branch is continuing his experiments on the use of ultraviolet rays as a physiological tracer technique.

GAS TURBINES may revolutionize propulsion of American Navy ships. A secret experimental installation has been in operation since 1944. Greater cruising range is foreseen with maximum operating temperatures nearly double the limit of present steam turbines.

LARGEST WIND TUNNEL in the U. S., achieving velocities of 1500 miles per hour, is now in use in the Ames Laboratory of the NACA. It was designed to test guided missiles and jet- and rocket-propelled aircraft. Another supersonic tunnel, now nearing completion, will achieve speeds of 3.6 times that of sound.

METALLIC TITANIUM, a strong light metal, perhaps may become widely used in industry because of a practical process of extracting relatively pure ductile titanium from its ores. Titanium ranks fourth in abundance among metallic elements suitable for engineering purposes. Certain titanium compounds have heretofore had specialized uses, such as the pigment titanium dioxide.

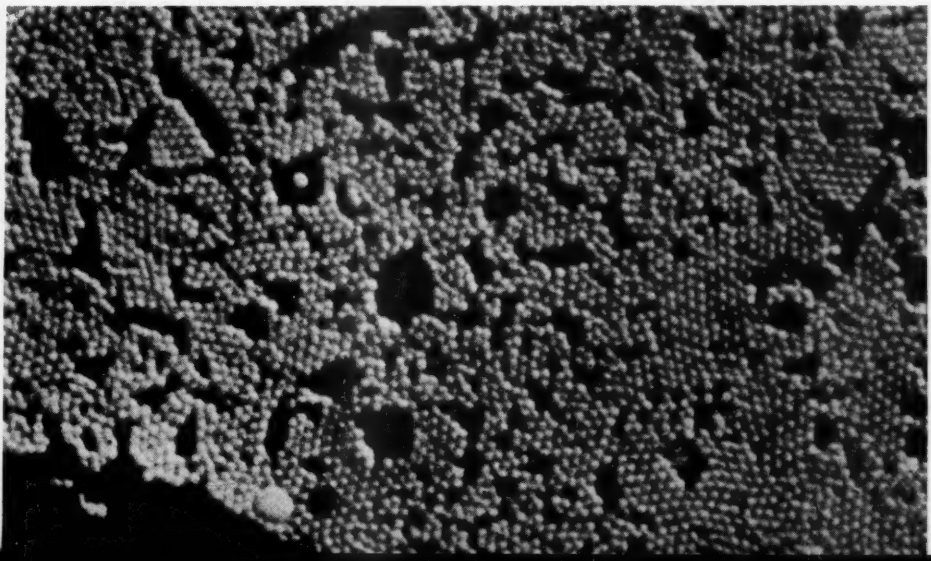
DDT kills insects by poisoning their nerves but it does not act uniformly on all nerve tissue, researchers at Tufts College have found (*Science*, 103: 306, 1946). The characteristic tremors are due to an intense afferent bombardment of the motor neurons, experiments on cockroaches showed. There was no significant action on the central nervous system.

BENZENE HEXACHLORIDE, a new British insecticide, may be the solution to the cotton boll weevil problem in the South. U. S. Department of Agriculture tests indicate that it is more effective against this particular insect than either DDT or the old standby, calcium arsenate. It was also more effective against cotton leafworms, plant bugs, cotton fleahoppers and cotton aphids, but less effective for the control of bollworms. The chemical is currently available only for experimental use.

AN ALL-WEATHER AIRLINE will be operated this summer for the first time by the Army Air Forces. Planes will defy the elements on a coast-to-coast schedule as an experimental "proving ground" for equipment developed to make flying safe in adverse weather.

ERADICATION OF SYPHILIS in a generation through use of penicillin is called "a pipe dream" by Dr. Evan W. Thomas of New York University College of Medicine. "No disease yet has been controlled entirely by treatment," he points out. "Both the psychological and social factors which favor promiscuity and poor sexual hygiene require further investigation if we are to get at the roots of the spread of syphilis."

THIN FILMS OF GOLD now make it possible to bring into range submicroscopic specimens otherwise beyond the reach of even the powerful electron microscope. This technique was used to reveal the interesting pattern of molecules of the bushy stunt virus shown in the electron micrograph below. The lower limit of usefulness for the electron microscope is determined ordinarily by lack of contrast rather than the smallness of the specimen. By depositing a film of gold obliquely on an ultra-thin specimen lacking definition, as in the illustration, higher elevations of the specimen then cast "shadows" to give a three-dimensional effect.



THIRTY pharmaceutical scientists, comprising the faculty of the **University of Illinois College of Pharmacy,** have formally expressed their support of proposed legislation (S. 1720) to established a National Foundation to provide Federal subsidies for research and education in the health sciences and other fields. In adopting the report of the College's Committee on National Legislation for Scientific Research, the faculty indicated that S. 1720, which is a compromise measure, embodies the most progressive thought on national science legislation available from scientific groups and should be enacted.

A tabulation of pharmacy **scholarships,** fellowships and graduate assistantships reported to the A. A. C. P. is available to prospective students in the January, 1946, issue of the *American Journal of Pharmaceutical Education.*

"Some Recent Advances in Chemotherapy and Pharmacology" was the subject of the Tenth Charter Centenary Lecture presented by the **Fordham University College of Pharmacy** in cooperation with the New York branch of the AMERICAN PHARMACEUTICAL ASSOCIATION on April 8. Speakers were Dr. Arthur P. Richards of the Squibb Institute for Medical Research and Dr. Sterling Brackett of the Stamford Research Laboratories.

Pennsylvania's Governor Martin has named Dr. Ivor Griffith, president of the **Philadelphia College of Pharmacy and Science,** to the state's advisory health board.

Pharmaceutical courses in the curriculum of the **Columbia University College of Pharmacy** have been concentrated in the last three years of schooling, with freshman studies being primarily devoted to the general science and cultural courses. The move was taken to facilitate the transfer of students from nonpharmaceutical colleges during or following the freshman year.

Many of the curricula and many of the courses in our pharmacy colleges need to be modernized. Hugh C. Vincent, **State College of Washington School of Pharmacy,** agreed with this frequently heard contention after he made a quantitative survey of pharmacy curricula in 49 colleges. Results of the study—primarily obtained for a personal evaluation of the Pharmaceutical Syllabus—are reported in the *American Journal of Pharmaceutical Education* (10:11, 1946).

Scattered reports indicate that our pharmacy colleges are receiving more **applicants** than can be accommodated. As much as 90% of some freshman classes are veterans.

Reflecting the general trend in pharmacy colleges throughout the country, **Oklahoma's School of Pharmacy** reported a fall enrollment double that in the spring of 1945; this spring the enrollment doubled again.

Enrollment at **Butler University College of Pharmacy** (formerly Indianapolis College) has risen to about 200, approaching the prewar figure.

At the **University of Connecticut College of Pharmacy** the freshman class is the largest since the course was lengthened to four years in 1932, with the number of applicants several times the number that could be admitted. All applications for next fall are being held until June 30, when the Committee on Admissions will select those best qualified.

VETERANS CROWD PHARMACY COLLEGES

TOTAL enrollment in the nation's pharmacy colleges now approaches the prewar level despite the fact that more than half the present pharmacy students are freshmen. A report just released by the American Association of Colleges of Pharmacy shows that 7086 undergraduate students were enrolled for the 1946 winter term in 59 colleges, with 6 colleges not reporting. This figure represents at least 87% of the total enrollment in a comparable number of colleges in 1941, the last prewar year. Meanwhile, spot reports from deans indicate an increasing number of applicants.

At the time of the A. A. C. P. survey, nearly half the students were veterans.

Of the total number tabulated only 463 were eligible for induction into the armed forces.

Nearly 2000 more students were reported enrolled for the winter term than had been reported in the fall, even though 6 colleges included in the earlier survey failed to report their winter enrollment.

There were 129 graduate students in the 59 colleges reporting.

University of West Virginia College of Pharmacy, like colleges in a number of other states, will probably limit enrollment next fall to state residents. The student body is already the largest in the history of the College.

Postwar expansion at **Pitt's School of Pharmacy** has brought six new members to the faculty staff—6 veterans and 2 women. Edward A. Reif has been assigned to the biology laboratory; George W. Meals, Robert Walkingshaw and John E. Lehnhardt to the chemical laboratory; and Miss Anna M. Stuchell and Mrs. Gizella B. Segin to the pharmaceutical laboratory.

A new scholarship fund for graduate study has been established at the **University of Pittsburgh School of Pharmacy** through a grant by the George A. Kelly Co.

At **Creighton University College of Pharmacy,** Frank Ferraro, one of the College alumni, has been appointed instructor in pharmacognosy. Mr. Ferraro was awarded the bronze star while serving in the Army.

Dr. Loyd E. Harris, formerly a lieutenant colonel in the Army, is now professor of pharmaceutical chemistry at the **Ohio State University College of Pharmacy.** Before the war Dr. Harris was a member of the faculty at the University of Oklahoma School of Pharmacy, where he originally took his undergraduate work in pharmacy.

Two faculty members have recently accepted posts in hospital pharmacy: Dr. W. Arthur Purdum, formerly of the **University of Maryland School of Pharmacy,** is now chief pharmacist at Johns Hopkins Hospital; Julian M. Wells, of the **University of California College of Pharmacy,** is chief pharmacist at the University's Hospital Pharmacy.

A new chapter of Kappa Psi, pharmaceutical fraternity, has been established at the **St. Louis College of Pharmacy and Allied Sciences.** Sixteen students were installed at the inaugural ceremonies on March 19.

The Alumni Association of the **Columbia University College of Pharmacy** has arranged a seminar for practicing pharmacists which will be held at the College May 28 and 29.

PHARMACY HELPS CONTROL SPREAD OF SMALLPOX IN WEST

Pharmacists were among the Navy personnel made available to west coast public health agencies early in April to help in the vaccination program against Oriental smallpox, which reached epidemic proportions in the Seattle area.

Eastern pharmaceutical manufacturers flew supplies of vaccine to the threatened areas to control the spread of the disease.

LOCAL BRANCHES

PHILADELPHIA—At the March meeting, Dr. J. D. McIntyre, president of Dr. D. Jayne and Sons, was named president of the branch for the ensuing year. Others elected were: Dr. Madeline O. Holland, managing editor of the *American Professional Pharmacist,* first vice-president; John E. Kramer, registrar of the Philadelphia College of Pharmacy and Science, second vice-president; Robert L. McNeil, Jr., of McNeil Laboratories, secretary-treasurer; and Paul Wilcox, of Sharp and Dohme, delegate to the national convention.

NEW YORK—Clarence Linton, Teachers College, Columbia University, spoke on "Special Problems of Veterans Under the G. I. Bill of Rights" at the February meeting of the branch. Jesse Goldbloom of the Veterans' Administration, New York, spoke on "Important Features of the Amended G. I. Bill of Rights," and Robert R. Gerstner closed the meeting with the talk, "The Practice of Pharmacy as a Field for the Veteran."

S. A. Dreyer, chairman of the Committee on Education and Legislation, presented a report which dealt with prescription writing, the antivivisection bill pending before the New York legislature, the wage and hours bill hearings, and the alumni seminar to be held at Columbia University College of Pharmacy on May 28 and 29. The final report of the Remington Medal Dinner Committee was also presented and the Committee was discharged with thanks.

The 1946 officers of the New York branch are F. D. Lascoff, president; Gustave Bardfeld, vice-president; Harry Kaye, treasurer; and F. J. Pokorny, secretary.

CANAL ZONE—At the January meeting of the branch, William E. Johnson and Winton A. Webb reported on their interview with the Chief Health Officer of the Panama Canal concerning higher professional classifications for pharmacists on the Isthmus. Their report was encouraging and a committee consisting of Mr. Webb, Everett R. Kimmel and Lynn Light was appointed to compile the necessary facts and figures to justify higher classifications.

The officers of the branch for 1946 are William E. Johnson, president; William F. Grady, vice-president; Thomas E. Cady, secretary; and A. Clay Sandusky, treasurer.

BALTIMORE—W. A. Purdum was recently elected president of the Baltimore branch. Irvin Freed is the new vice-president and F. S. Balassone, secretary-treasurer.

STUDENT BRANCHES

UNIVERSITY OF ILLINOIS—"Things are really pepping up with the G.I.'s back" according to Elizabeth Grembowicz, newly elected secretary of the student branch. Other officers are Doris Hill, president; Ray Dauphinais, vice-president; and Arnold Rife, treasurer. The membership of the branch is increasing rapidly and publication of a branch newspaper is under way.

ST. JOHN'S UNIVERSITY—A series of colorful films on essential oils was presented by Fritzsche Brothers to the student branch at the College of Pharmacy during a recent meeting. The effect of the war on the essential oil industry, the comparison of the type of labor involved abroad and here, and the trend in the United States toward mass production were explained in an introductory talk.

"Keep up with the periodicals" was the motto proferred by Robert Mechler, president of the Alumni Association of St. John's College, who was guest speaker at the meeting on March 11. He stressed the importance of pharmacists having a thorough knowledge and background of their field and associated fields and emphasized that the man with accurate, ready information is the successful man.

LOUISVILLE COLLEGE OF PHARMACY—Patrick J. Cain has been elected president of the recently reorganized student branch. Alfred Casper is the new vice-president; Rose Marie Dunn, secretary; and Florence Kreitman, treasurer.

RUTGERS UNIVERSITY—Science Day, a public event scheduled for May 17, will culminate an active program conducted by the student branch during the past school year. Highlight of the first semester was Pharmacy Night, a social event designed to bring together the students and state and local leaders in the profession. Both business and social meetings were held each month. Some of the features at these sessions were a series of motion pictures on anesthesia, lectures, and a glass blowing demonstration, reports Miss Theodora Decker, branch president.

ST. LOUIS COLLEGE OF PHARMACY—The new officers are Robert Moore, president; Bernard Mellburg, vice-president; Martha Shackelford, secretary; and Harold Crall, treasurer.

———R———

Mrs. Roy Bird Cook, wife of A. Ph. A.'s Council member and former president from West Virginia, has been appointed state historian and archivist.

FROM THE SECRETARY'S MARCH DIARY

—1st—

SPRING is in the air and reminds us that summer with its heavy schedule of convention activities is not far behind. The mail brings many an invitation to speak here and there, but with conflicting dates and a calendar already filled with necessary home work and earlier obligations, it becomes harder and harder to plan the most effective use of time.

Most encouraging is the monthly membership report which indicates that the 9000 mark has been passed, thanks to the splendid cooperation of many members and the efficient help of a loyal staff.

—2nd—

Fire in a house across the river illuminated the Jersey countryside late at night with volunteer companies doing an excellent job to prevent its spread to nearby homes. There is nothing like a common danger to bring out the possibilities of helpful cooperation. One could wish for more of the same in everyday affairs locally, nationally and internationally.

—4th—

An early conference with the architects and the painters to decide on color schemes for the halls and rooms and learned what a Dado is in the lingo of decorators. At lunch with Lt. Col. Nelson and Maj. Johnson of the Army Pharmacy Corps.

—5th—

More conferences with the architects who are planning where to locate a flag pole for the only flag-less building on Constitution Avenue in Washington, D. C. Most of the day at the desk in strange surroundings while the regular office receives its first coat of paint. Again observed how splendidly these artisans go about their work. No evidence of killing time here and every stroke of the brush a master stroke by a man in love with his work, reminding us of the story of the three hewers of stone at the site of a building operation. Said a passerby to the first of these: "What are you doing," and the answer was "cutting stone." The same question to the second workman brought the reply "working for a living." But the third man, intent and earnest in his work with hammer and chisel, replied "I am helping to build a cathedral."

—6th—

A pleasant visit with Dean Rudd who was in town for the annual "Science Talent Search" awards which have so greatly stimulated the interest of our youth in scientific pursuits. Also, a visit from Roy

Koch who now leaves C.P.A. to join William R. Warner & Co., and John McDonnell who left C.P.A. while it was still W.P.B. and now gives much time to Schering Co. This day also marks the replacement of the old bottled water cooler in the hallway by a modern Norge refrigerating unit that works well.

—8th—

Pharmacy takes on new form and authority in the Veterans' Administration as Dean W. Paul Briggs takes the oath of office as chief pharmacist and director of pharmaceutical affairs. Many a long distance telephone request for information from scattered places, including New York, Philadelphia, Columbus, O., Madison, Wis., and able to give satisfactory replies to all.

—10th—

Another Sunday given over in part to the pharmaceutical affairs of New Jersey and it is interesting to observe the effect of closer contact with the problems of the 48 states upon what goes on at home.

—12th—

Most of the day spent in reviewing problems involving direct contact of pharmacy with public health activities in general.

—13th—

After a busy morning at the desk, met with Du Mez and Little at the office of the American Council on Pharmaceutical Education in Baltimore to discuss the value and importance of pharmaceutical syllabi to pharmaceutical education. Perusal of the views of other accrediting agencies and spirited discussion of the problem led to the conclusion that a compulsory pharmaceutical syllabus need not be an accreditation requirement in the light of recent progress in pharmaceutical education.

—14th—

And now off on the 1 p. m. train for New York for the annual dinner of the Drug, Chemical and Allied Trades Section of the New York Board of Trade at the Waldorf-Astoria, where 2000 men in all walks of pharmacy and the drug industry gathered to hear Gen. L. R. Groves tell what could now be revealed of the atomic bomb project. And very glad to see so many old and new friends, including G. A. Pfeiffer, Edward R. Gay of W.P.B. fame and literally hundreds of others.

—15th—

All morning at the Pennsylvania Hotel in New York with visits from our "Adman" Charles O'Malley and later Prof. Meuser of West China University who is in America on furlough and has an interesting story to reveal of many obstacles overcome and a long-range program for the education of the Chinese in American pharmacy.

—19th—

Today came the members of the special committee appointed by the National Drug Trade Conference to endeavor to bring harmony into the views of various branches of the drug industry and the profession of pharmacy with respect to Federal and state legislation affecting all concerned. Being adorned with the chairmanship of this illustrious group will bring additional gray hairs, but there seemed to be sufficient enthusiasm and concentration on the problems involved to augur well for results in some directions.

—20th—

A welcome visit from President Moulton, whose son received the coveted Johns Hopkins M.D. at Baltimore yesterday in the presence of a proud Mother and Dad. We reviewed the itinerary of Dr. Moulton's proposed trip to the far West to visit state association conventions in California, Oregon, Washington, Montana, Wyoming, Colorado and Utah during June.

Later to dinner with A. PH. A.'s two illustrious Georges, Beal and Moulton, and Mrs. Beal adding real charm to the occasion. Then for a three-way conference on A. PH. A. affairs until George Moulton left for Baltimore.

—21st—

A staff meeting with Council Chairman Beal in attendance, which always adds authority, wide experience and wisdom to the deliberations. Decisions reached on many a publication problem.

As workmen began the pointing of the white marble exterior and the granite approaches to our building, there came a tinge of sadness when news was circulated among the staff that one of the pair of cardinals, which have made the evergreens on the grounds their year-round home, suddenly flapped wings for the last time against the library window. This time it was not to suggest the need for food, but rather to remind that even cardinals are not immortal.

—22nd—

And now another trip to New York after a hectic morning at the desk. This time to sit with the Board of Directors of the American Social Hygiene Association where problems of budget and activities are similar to ours. One marvels at the extent of the activities of this organization which is a tribute to the organizing genius and statesmanship of Dr. Snow, the keen insight of Dr. Walter Clarke into the social and medical problems of venereal disease control, and the loyal cooperation of staff and

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directorate in both planning and execution.

—24th—

Part of another Sunday devoted to listening to plans for a proposed Health Congress for the state of New Jersey.

—25th—

After a busy day with mail galore on every conceivable subject—pharmaceutical and otherwise—from all parts of the globe and in many languages, a visit to Garfield Hospital where Mrs. Kittie Burt, efficient bookkeeper at A. PH. A. headquarters, is recovering from an operation.

—26th—

A pleasant surprise visit from E. W. Gibbs of the Alabama Board of Pharmacy and later came Prof. Orr of Ohio State University, still in the uniform of a naval officer, but soon to return to his teaching. These are days of some commotion in the library and museum, for the painters are on their last lap and great care is needed to cover books and cases while the lead is spread on walls and ceilings.

—27th—

This morning a visit from Thomas E. Cady on his way from the Canal Zone to his home in Nebraska. His term of office as A. PH. A. local branch secretary in the Canal Zone was marked by excellent programs and fine cooperation with headquarters.

—29th—

Today a rush trip to Hackensack, N. J., and return to lend a hand in proceedings brought by a supermarket operator to compel the N. J. Board of Pharmacy to grant a permit to compound prescriptions. The decision will be made by the State Supreme Court and their are many fundamental issues involved, with trends toward merchandising in the average pharmacy scheduled to play quite a part in the final decision.

SUSPENSION OF SULFADIAZINE

A palatable suspension of sulfadiazine, developed by pharmacists Bain Chiba and George L. Phillips of the University Hospital Pharmacy at Ann Arbor, Mich., has the following formula:

	Gm./cc.
Sulfadiazine powder	62.5
Pectin	7
Sodium citrate	75
Benzaldehyde	0.2
Zephiran chloride sol., 12.5%	1
Syrup	500
Orange flower water	200
Distilled water, *q. s.*	1000

Rub the pectin until smooth with a small amount of syrup. Add the remainder of the

syrup. Add the other ingredients, having first dissolved the sodium citrate in the orange flower water. Mix thoroughly and pass the mixture through a homogenizer.

This formula, reported in the *Bulletin of the American Society of Hospital Pharmacists*, provides in each 4 cc. of suspension: 0.25 Gm. sulfadiazine and 0.3 Gm. sodium citrate. The latter is included to make the urine alkaline, thus preventing crystalluria.

SUN-KRAFT LAMP UNACCEPTABLE TO A. M. A. COUNCIL

The Council on Physical Medicine of the American Medical Association has reaffirmed its stand that the Sun-Kraft "Cold Quartz Ultraviolet Ray Therapy Lamp" is unacceptable (*J. Am. Med. Assoc.*, 130: 493, 1946).

Radiometric findings showed that "the ultraviolet output of the Sun-Kraft model A-1 lamp, in total intensity, does not meet the Council's requirements for acceptability for use either (1) as a sun lamp (also in spectral quality) for home use or (2) as a therapeutic lamp prescribed by a physician for home use or (3) as an ultraviolet disinfecting lamp.

The Council's adverse report was also based on "scientifically incorrect, misleading (even the name 'Sun-Kraft' is misleading), and unfair sales promotion; the unsubstantiated claims made; and also because of the recommended inhalation of ozone, which is known to be highly toxic and irritating to the bronchial tract."

PRODUCTION OF DENTIFRICES

In one year the principal manufacturers of dentifrices produced 25,000,000 pounds of toothpaste, 10,000,000 pounds of toothpowder, and 1,000,000 pounds of liquid tooth cleanser. These quantities were packaged in approximately 296,000,000 marketable units. Figures cited were obtained by the War Production Board in a survey covering the year 1941. In releasing the data, C. P. A.'s Chemicals Division estimates that the firms reporting account for about 85% of total U. S. production of bulk material and marketable units.

DENTAL PRODUCTS VOLUME TOTALS $300,000,000

Dental products constitute an annual volume of $300,000,000 when the dentist's office supplies and equipment are included, according to a compilation of statistics prepared by Dental Survey Publications. The volume in each class of products is estimated as follows:

Dental supplies, equipment and materials sold to dentists	$100,000,000
Dental laboratory volume	70,000,000
Dentifrices	70,000,000
Mouth washes	18,000,000
Tooth brushes	35,000,000
Denture adhesives, cleansers, etc.	4,800,000
Miscellaneous, including diet reinforcement preparations, anodynes, etc.	7,200,000

TOOTHBRUSH SHOULD BE SMALL WITH STRAIGHT-TRIMMED BRISTLES

To be effective for cleaning teeth a toothbrush should be compact and simple in design with relatively small, straight-trim bristles, Dr. H. Berton McCauley of Washington, D. C., reports in a paper authorized by the Council on Dental Therapeutics (*J. Am. Dent. Assoc.*, 33: 283, 1946).

A survey by the American Dental Association has shown that the professionally preferred brush should also have a straight handle and tufts of equal length. Sharp-angled handles make manipulation difficult and uneven tufts transmit uneven forces to the teeth and gums, thus promoting soft tissue injury, unnecessary abrasion and inefficiency, Dr. McCauley said.

Although recognizing the need of some varia-

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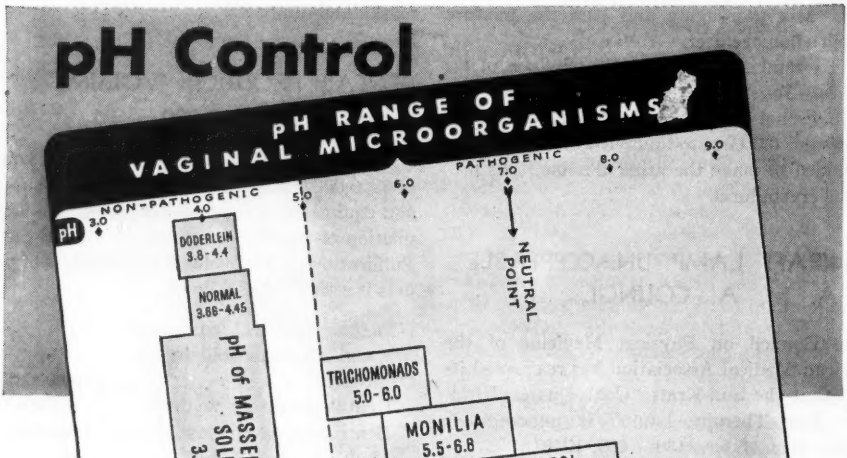

LEFT—A pH of 3.86 to 4.45, found in the normal vagina (intermenstrual period), favors the growth of harmless Döderlein bacilli, normal inhabitants of the vaginal tract. Massengill Powder solution presents a pH of 3.5 to 4.5.

RIGHT—The pH range, 5.0 to 9.0, most favorable to the development of pathogenic organisms.

SINCE the average woman wants and needs advice regarding a proper douche, her physician is confronted by the problem of choosing an effective preparation which at the same time is safe, noncaustic and nonirritating. Massengill Powder may be recommended with assurance because it combines therapeutic efficacy, preventive action and hygienic value, with virtual freedom from irritant properties. Its particular advantage lies in control of vaginal pH.

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tion to meet individual requirements, the following toothbrush specifications are recommended for most adults: over-all length $6\frac{1}{2}$ inches, with a head $1\frac{1}{4}$ inches long and $\frac{3}{8}$ inches wide; two rows of tufts, each row 1 inch long and containing 6 tufts spaced $\frac{1}{8}$ inch apart. Each tuft should be about $\frac{1}{2}$ inch long. In most cases, stiffness of bristles should be "hard."

Slightly smaller brushes of "medium" stiffness are recommended as generally satisfactory for adolescents and children.

Also of special interest to pharmacists is Dr. McCauley's conclusion that the majority of American people still do not brush their teeth and that half of them do not even own a toothbrush.

Manufacturers' statistics show that only 106 million brushes were available to civilians in 1944, the last year for which full statistics are available. This, however, represents a major increase over the 70 million brushes Americans purchased in 1939, the last normal peace year. Approximately 220 million brushes would be required, it is pointed out, to supply two brushes yearly for each person in the United States who is more than two and less than sixty years of age.

DENTAL REMEDIES

reeently accepted by the
COUNCIL ON DENTAL THERAPEUTICS
AMERICAN DENTAL ASSOCIATION

Admission to Accepted Dental Remedies *means that a product and the methods by which it was marketed at the time of consideration were not found to be in violation of the published rules of the Council on Dental Therapeutics. A summary of the rules appeared in* THIS JOURNAL, *7:153 (April), 1946. Accepted products are reconsidered periodically.*

Penicillin and Related Preparations*

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Penicillin Calcium Salt—Abbott, in vials containing 100,000 and 200,000 Oxford Units. Manufactured by Abbott Laboratories, North Chicago, Ill.

* *Accepted Dental Remedies*, Ed. 11, p. 162.

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